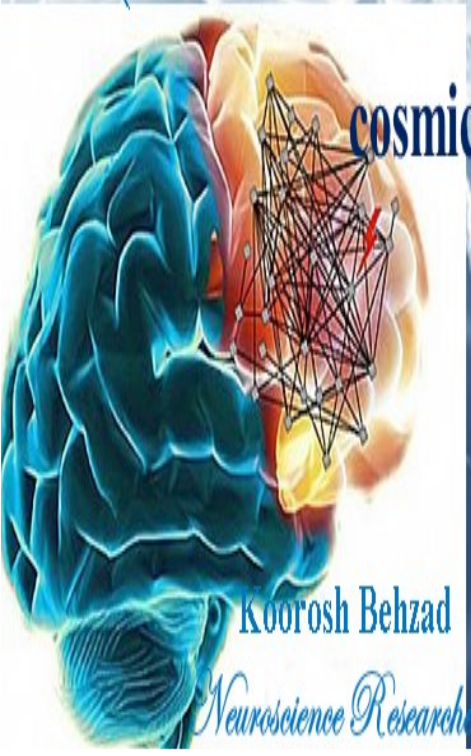
Satellite communications of the brains

(Introduction to "brain connection with cosmic memory")



Koorosh Behzad

Neuroscience Researcher

Brains Satellite Communications

(Introduction To "Brain Connection With Cosmic Memory")

Koorosh behzad

(Neuroscientist Researcher)

kbehzadnia@gmail.com

+9809174055595

Abstract:

Can the human head behave like a satellite? Is our body fit for this?! Proving this point is the gateway or a license to the world of brain satellite communication; The knowledge of satellite communication of the brain is a subcategory of neuroscience, which takes help from other sciences, especially electrochemical topics , biology and different branches of physics to justify the mental processes of the brain. Satellite communication of the brain leads to two different branches:

Brain connection with cosmic memory

Brains communication with each other

Some points or events seem very obvious and simple;

But the history of experimental sciences has proven many times that simple events can lead to great and important discoveries.

The sharp eyes of great scientists have extracted important scientific principles from the simplest natural events.

The scientists were successful who made numerous theories from the careful observation of simple phenomena;

They were not afraid of making theories;

In the next step, they compared the theories with scientific findings to choose a more scientific theory and

finally defined it as a scientific principle.

But as I said, to reach this stage, simple events must be carefully observed and analyzed;

so everything starts with seemingly simple questions;

According to this point, "the amount of brain activity of a person who is resting is less than that of a person who is standing."[1] Why does man walk standing up unlike other animals?!

Why is the human head completely spherical, unlike intelligent animals?! Even the heads of

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[1] **James K. Rilling, Sarah K. Barks,* Lisa A. Parr, Todd M. Preuss, Tracy L. Faber, Giuseppe Pagnoni, J. Douglas Bremner, and John R. Votaw: A comparison of resting-state brain activity in humans and chimpanzees. Proc Natl Acad Sci U S A. 2007, 23:2007. 10.1073/pnas.0705132104**

monkeys have fundamental differences with human heads and are not completely spherical!

Can these simple differences lead to perceptual differences between them?!

Is it possible to Semantic understanding with these seemingly simple physical differences?! (The meaning of "semantic understanding" is not its conventional meaning. Rather, I mean human superior understanding that distinguishes us from animals. In my theories, has been named "human magical talent" that for short, I call HMT.)

The power of Semantic understanding is such that it has expanded the scope of other human Perceptions and emotions;

Likely With these simple apparent differences and with the help of the following two hypothesis, it is possible to Semantic understanding.

The first hypothesis, the possibility of a diffuse memory in space.

Two; It is possible that the human head acts like a satellite dish;

An advanced satellite dish capable of receiving, processing and retransmitting intellectual waves to the surrounding environment.

In this case, "Simple and important differences of between our head and animals head " and the standing position of a person will have an important reasons;

In this state, the human head is prone to receive the most thought waves from the cosmic memory.

Suppose that thought waves are spread in space in format of intelligent energies.

If we call thought waves spread in space cosmic memory.

As you can see, Experiments, many theories, researches and discoveries are needed so that the head can be considered to the other brains as a strong receptor for receiving information and resend. But the important thing is that from a scientific point of view this possibility is not unlikely .

I have tried to describe the different dimensions of this theory in the form of a thick book;

But the basis of all efforts is in vain if we cannot prove that the shape of the human head and his standing position has made us a very strong receiver.

This article deals with the above topic in detailrefers and also to the outlines of that book.

key words:

“The connection of brains with Cosmic Memory” Theory , morphology of the brain , morphology of the human , Human standing position , Brain compression tactics , Intelligent receiver of thought waves, H.M.T. Theory, Cosmic Memory , brain satellite communications, smart energy, intelligent energy, Superior human understanding (HMT) , Higher Human Understanding (HMT), meaningful electrical

pulses, coded intelligent energy, junk experiences, junk information, coded smart energy(CSE) , Wavelength of thought, diffuse thought waves in space, thought Wavelength, thought waves.

Introduction:

Man follows the events of life in two ways, experiential and semantic understanding;

But based on the origin or anatomy, we are forced to consider three types of understanding for humans:

Experiential understanding that is formed in the thalamus and cortical area; And in this distance, it involves many other areas, especially the thalamocortical, corticothalamic and limbic system.

Cosmic or semantic understanding; which is formed in the hippocampus area and cosmic memory. And in this distance, it involves many other areas especially the cerebral cortex , prefrontal and other parts of the limbic system.

Unconscious understanding, which is a mixture of the two previous understandings Provided that it is stabilizated in the cerebellum by repetition.

How to form semantic understanding and How the outer part of the cerebral cortex is related to the cosmic memory is justified with the following: "Converting intelligent energy into meaningful electrical pulses and vice versa" . "Ionization" , " local inhibitory circuits in layer 1"[2] , "Inhibitory plasticity in layer 1 "[3], "convergence of information in Neocortical layer 1"[4],

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[2] Arne Brombas, Lee N. Fletcher, and Stephen R. Williams: Activity-Dependent Modulation of Layer 1 Inhibitory Neocortical Circuits by Acetylcholine. J Neurosci. 201429, 34:1932-1941. 10.1523/JNEUROSCI.4470-13.2014

[3] Jan Hartung , Johannes J Letzkus: Inhibitory plasticity in layer 1 - dynamic gatekeeper of neocortical associations. Epub. 202017, Curr Opin Neurobiol. 2021, 67:26-33. 10.1016/j.conb.2020.06.003

[4] Larkum M: A cellular mechanism for cortical associations: An organizing principle for the cerebral cortex. Trends in Neurosciences. 2013, 36:141-151.

Abs E, Poorthuis RB, Apelblat D, Conzelmann K-K, Spiegel I, Letzkus JJ: Learning-Related Plasticity in Dendrite-Targeting Layer 1 Interneurons. Neuron. 2018, 100:684-699. 10.1016/j.neuron.2018.09.001

Cichon J, Gan W-B: Branch-specific dendritic Ca2+ spikes

"Heterosynaptic Plasticity and the Experience-Dependent Refinement of Developing Neuronal Circuits[5], homosynaptic plasticity"[6] , " Dendritic calcium spikes"[7] , "The formation of calcium dendritic spikes in the apical dendrites of CA1"[8] and many other things.

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cause persistent synaptic plasticity. Nature. 2015, 520:180-185. 10.1038/nature14251

[5] Kyle R. Jenks, Katya Tsimring, Jacque Pak Kan Ip, Jose C: Zepeda, and Mriganka Sur,. Heterosynaptic Plasticity and the Experience-Dependent Refinement of Developing Neuronal Circuits. Front Neural Circuits Journal. 2021, 15-2021. 10.3389/fncir.2021.803401

[6] Marina Chistiakova, Nicholas M: Bannon, Maxim Bazhenov, and Maxim Volgushev,. Heterosynaptic Plasticity: Multiple Mechanisms and Multiple Roles,. Neuroscientist. 2014, 20:483-498. 10.1177/1073858414529829

[7] Mototaka Suzuki & Matthew E. Larkum: Dendritic calcium spikes are clearly detectable at the cortical surface. Nature Communications. 8:276. 10.1038/s41467-017-00282-4

[8] Nace L. Golding, Hae-yoon Jung, Timothy Mickus, and Nelson Spruston: Dendritic Calcium Spike Initiation and Repolarization Are Controlled by Distinct Potassium Channel Subtypes in CA1 Pyramidal Neurons,. J Neurosci. 199915, 19:8789-8798. 10.1523/JNEUROSCI.19-20-08789.1999

Based on origin or anatomy, humans have three memories and other intelligent mammals have two memories.

The most basic thing in any being is the ability to perceive; Emotions, planning, memory and many other things are considered as its activities results. Decision making, planning, emotions, etc., are formed along the empirical and semantic understanding.

You use experiential and semantic understanding in four ways that with the unconscious understanding of the cerebellum, this number reaches five.

The above content are part of the results of several theories

Including: “The connection of brains with Cosmic Memory” Theory

“HMT. Theory”

and some other theories that are less important than the above two theories.

All the above theories together have a new look at how the mind is formed in the brain.

All my theories are based on human physics and his differences with other animals; In my opinion, Spherical shape and the head position , its differences with animal heads; and human standing position has an important and special reason.

In the cycle of nature, there is no event or point without a reason; Sometimes removing a point endangers the life of a living being.

Even small points like "Minor differences available in the position

of the human head compared to intelligent animals" can have important reasons .

or even lead to the formation of mental ability differences between humans and animals.

The above theories and the special physics of humans compared to other animals, show that how you can be communicate with the outside world or the cosmic memory.

Or how the brain converts meaningful electrical pulses into intelligent energy with the help of ionization processes and Genetic abilities and it removes junk information from the brain in this way.

Identification of the genetic elements that distinguish humans from chimpanzees and encode the characteristics of human

physiological and mental identities is in proving my theories of great importance.[9]

In early work, the divergence of human and chimpanzee genomes was estimated to be approximately 1%.[10]

The idea that genomes are ~99% similar persisted for a long time, until in 2005 it was found that genomic differences representing single nucleotide changes accounted for 1.23% of human DNA. while with accounting for larger deletions and

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[9] **Lu Y, et al.: Evolution and comprehensive analysis of DNaseI hypersensitive sites in regulatory regions of primate brain-related genes. Front Genet. 2019, 10:152.**

Bauernfeind AL, et al.: High spatial resolution proteomic comparison of the brain in humans and chimpanzees. J Comp Neurol. 2015, 523:2043-61. 10.1002/cne.23777
Prescott SL, et al.: Enhancer divergence and cis-regulatory evolution in the human and chimp neural crest. Cell. 2015, 163:68-83. 10.1016/j.cell.2015.08.036

[10] **King MC, Wilson AC: Evolution at two levels in humans and chimpanzees. Science. 1975, 188:107-16. 10.1126/science.1090005.**

insertions, they make up about 3% of our genome . [11]

These genetic differences enable your brain to receive the thought waves of others from the surrounding environment.

These genetic differences, with the help of the prefrontal, create semantic understanding and semantic understanding is the point of distinction and superiority of humans from animals.

The book "The magic of make alive" deals with the above in detail.

In that book, you will read in detail that the six layers of the human

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[11] **Lander ES, et al.: Initial sequencing and analysis of the human genome. Nature. 2001, 409:860-921. 10.1038/35057062.**

Consortium., C.S.a.A. Initial sequence of the chimpanzee genome and comparison with the human genome. Nature. 2005, 437:69-87. 10.1038/nature04072.

neocortex how communicate with the intelligent energy wandering in the environment due to means of genetic differences.

But in this article I am trying merely to deal with the physical state of man and his head and show that the spherical shape of the head can play the role of a satellite.

Can the head be likened to a satellite dish? Can the brain act like a Wave processing device?

In my opinion, The head in a standing position shows the best working form of the satellite.

If the answer is positive, the theory of connection between brains with cosmic memory can be proposed.

As at the beginning, very briefly, I introduced the results of this theory.

This theory can answer many complex questions of mind and brain.

Another feature of this theory is that most of the findings of neuroscience researchers confirm it.

researchers can not deeply understand human cognitive abilities for two main reasons;

First that ,; No one has been able to create harmony and meaningful coordination between the researchers' findings. Neuroscience, Psychic and Brain knowledge requires, More than anything, a basic theory; A theory that, like Darwin's theory, be have a natural basis ;

A lawful and purposeful outline that will be confirm most of the scientific findings of neurologists; That is, It has observed the scientific principles and to be answerable to the

astonishing human cognitive and mental abilities;

I certainly do not mean that the above theory to be flawless or complete; Because, like Darwin's theory, it becomes the basis for the work of later researchers And gradually, small mistakes are corrected and complet by them. That is important which your theory be on the right path and show a real window or gateway to get out of the current impasse!

The second reason is that the researchers' findings are not complete. although The results of the researchers' efforts are commendable; But in the human brain, there are simple and very important points that understanding them, answer many of mental

complexities. that unfortunately, less attention has been paid to them!

Therefore, in orderTo fully understand how of understand human, in addition to reconciling the findings of neurologists and creating a hypothesis, it is best to reconsider simple and fundamental questions from the beginning;

To fully understand what I mean by "reconsidering self observations ", I will give two examples:

First example;

You probably say that the reason for the superiority of human intelligence is the greater number of neurons.

Why do you imagine that the number of neurons causes human cognitive superiority over intelligent animals?

why do you imagine the number of neurons increases consciousness in

the brain ?! While the cerebrum with fewer neurons is smarter than the cerebellum!

Contrary to what you might think, more neurons do not increase processing and perception! Because, the number of cerebellar cells is many times the number of neurons cerebrum. Even the number of Gray neurons of Cortical part of the cerebellum is many times more than the number of Gray neurons of The cortical part of cerebrum. If the number of neurons was the reason for cognitive superiority, the cerebellum, with seventy billion neurons, would have to control all the superior human cognitive centers! While the cerebral cortex, with fewer neurons, has housed and Controlled most of the basic and important cognitive centers!

second example;

increasing the capacity of neurons is not a compelling reason for a cerebral cortex that has occupied eighty percent of the brain volume.

you can clearly see brain communicating with other people's brains! How is this connection established ?! Or according to which scientific laws does it work ?! We are inevitable justify the brain's communication with the outside world according to scientific laws.

To do this, we need to hypothesize and revise our observations.

Do we have a correct understanding of the cerebral cortex?

Aren't the grooves on the cerebral cortex suitable for increasing brain waves receptivity?

you have analyzed the six-layer genes of cortical neurons with astonishing accuracy; While you have not yet found an accurate and reasonable answer to the duty of the grooves in the surface of the brain! I will go on to prove that increasing the capacity of neurons is not a compelling reason for a structure that has occupied eighty percent of the brain volume.

As you know, one of the anatomical differences between the human brain and other organisms is in the neocortex of the cerebral cortex. Although the difference in the size of our cerebral cortex is not very big compared to mammals;[12] But this

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[12] **JK Rilling: TR Insel, The primate neocortex in comparative perspective using magnetic resonance imaging. J Hum Evol. 37:191-223. 10.1006/jhev.1999.0313.**
HD Frahm, H Stephan, M Stephan: Comparison of brain structure volumes in Insectivora and Primates. I. Neocortex. J Hirnforsch. 23:375-389. 10.1006/jhev.1999.0313
MA Hofman: Size and shape of the cerebral cortex in mammals. II. The cortical volume. Brain Behav Evol. 32:17-

difference exists in relative sizes and Except for a few intelligent animals, it becomes impressive compared to others. The cortical part of the brains of smarter animals is more extensive and thicker than other species; [13] The human neocortex, in addition to being thicker, has occupied a larger area of the brain; In addition to being wider, this level has more nerve cells.[14]

But the grooves on the surface of the human brain are not designed to increase cell capacity; The body has repeatedly shown that it can solve the problem of cellular capacity with

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26. 10.1159/000116529

[13] **Daniel H Geschwind , Pasko Rakic: Cortical evolution: judge the brain by its cover. Neuron. 2013, 80:633-647. 10.1016/j.2013.10.045**
Pasko Rakic: Evolution of the neocortex: a perspective from developmental biology. Nat Rev Neurosci . 2009, 10:724-735. 10.1038/2719

[14] **Striedter GF: Principles of Brain Evolution. Sinauer Associates Inc. 2005, 10.1017/S0140525X06009010.**

compression tactic; And it does not need to the grooves for doing this. The compression tactic means to Inclusion large numbers of neurons in a small space! The cerebellum, for example, houses seventy billion neurons; While the share of the cortical part of the brain and its other parts is sixteen billion neurons.[15]

In my opinion, the grooves on the surface of the brain are important apart from the number of neurons;

That's why they have occupied more than two-thirds of cerebrum. That is, they are so important to the brain that it accounts for more than two-thirds of cerebrum space!

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[15] **Herculano-Houzel S. (2012: The remarkable, yet not extraordinary, human brain as a scaled-up primate brain and its associated cost. Proc. Natl. Acad. Sci. U.S.A. 109(Suppl. 1:10661-10668. 10.1073/pnas.1201895109**

The superficial grooves of the brain in humans are larger than in other intelligent mammals.[16]

In addition, As I explained the cognitive ability of the cerebellum is not greater than that of cerebrum; That is, more neurons can not mean more processing and increased cognitive power. So we back to this important question again:

What is duty of the grooves existing on the cortical of the brain ?!

What is the role of the grooves existing in the surface of the brain ?!

Because these grooves are so important that they have occupied the entire surface of the brain, you have to find an answer to justify them that suits The ingenious morphology of the brain and its unparalleled

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[16] **H Stephan, H Frahm, G Baron: New and revised data on volumes of brain structures in insectivores and primates. Folia Primatol (Basel. 1981, 35:1-29. 10.1159/000155963.**

genius; A fundamental role that in brain mental processes and its Complexities be helpful !

The set of above points convince us that probably the cerebral cortex and the grooves on it play a significant role in capturing thought waves; (Intelligent receiver of thought waves) And this increases human cognitive understanding compared to intelligent animals. (At least this hypothesis is worth testing.)

Materials and methods of investigation

How can the brain communicate with other brains or cosmic memory?! and what tools does it need to does this ?!

Your brain to communicate with other brains, first of all, it must have a powerful receiver and transmitter. Suppose how brains relate is like satellite communication and the brain behaves like satellite receiver.

Basically, satellite is a multipurpose communication system. [17] is a complex device for transmitting waves; is designed to capture, amplify, process and resend different signals.[18]

The satellite has two main components;

First; includes the communication system such as antennas and transmitters that receive and send signals.

Second; includes solar panels that provide energy.[19]

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[17] K. W. Pearson: Satellite communications. The Computer Journal, Volume. 1963, 5:308-312. 10.1093/comjnl/5.4.308

[18] Samson Mathews: Telecommunications System & Management. Samson Mathews (ed): Ordnance Factory Board, Calgary, Alberta, Canada; 2022. 10.1016/B978-1-59-749641-4.00015-1

[19] Takashi Iida , Hiromitsu Wakana: Communications Satellite Systems,. . Encyclopedia of Physical Science and Technology . 2003, Third Edition:375-408. 10.1016/B0-12-227410-5/00882-6

The human brain has both of the above features; It can handle and provide the required energy well; also It can be a wonderful satellite.

About brain energy:

The brain is one of the most powerful tissues in the body that has a lot of energy.[20] Brain energy is calculated in two ways; An older method that calculates the energy of the brain based on the number of neurons. According to this method, the human brain with 2% of the body mass consumes about 20% of the total energy budget of the body.[21] Another

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[20] Schmidt-Nielsen K: Scaling. Why is animal size so important?. William L. Jungers (ed): Cambridge University Press., New York; 1986. 10.1002/ajpa.1330690114
Rolfe DFS, Brown GC: Cellular energy utilization and molecular origin of standard metabolic rate in mammals. Physiol Rev. 1997, 77:731-758. 10.1152/physrev.1997.77.3.731

[21] Donald D Clarke and Louis Sokoloff.: Circulation and energy metabolism of the brain. Siegel GJ, Agranoff BW, Albers RW, Fisher SK, Uhler MD, editors (ed): Lippincott-Raven, Philadelphia; 1999. 10.1016/j.cmet.2011.08.016
Kety SS : The general metabolism of the brain in vivo.

method invented by Boyer and his student Harrington calculates energy based on the volume of the skull and Brain glucose absorption and the size of the blood vessels of the brain; Those who follow this method believe that the rate of blood flow volume can be considered equivalent to metabolic energy consumption.[22] According to this method, although the human brain makes up only 2

Richter D, (ed): Pergamon, London; 1957. 10.1016/B978-0-08-009062-7.50026-6

[22] R A Hawkins, A M Mans, D W Davis, L S Hibbard, D M Lu: Glucose availability to individual cerebral structures is correlated to glucose metabolism. J. Neurochem. 1983, 40(4):1013-8. 10.1111/j.1471-4159.1983.tb08086.x
Knut Schmidt-Nielsen: Scaling: Why is Animal Size So Important?. William A. Calder (ed): Cambridge University Press, New York; 1984. 10.1126/science.226.4681.1412.b
Jan Karbowski: Scaling of brain metabolism and blood flow in relation to capillary and neural scaling. PLoS One .. 2011, 6(10):e:26709.. 10.1371/journal.pone.0026709

[23] Doug M. Boyer, Arianna R. Harrington: Scaling of bony canals for encephalic vessels in euarchontans: Implications for the role of the vertebral artery and brain metabolism. Human Evolution. 2018, 114:85-101. 10.1016/.2017.09.003

percent of body weight, it consumes more than 25 percent of our baseline energy budget. (Approximately 27% of basal metabolism;)[23]

However, whichever method you follow, the brain uses between twenty and twenty-seven percent of the body's energy and is very powerful compared to other body organs;[24] Although muscles and liver are more powerful than that.[25] Almost all researchers agree that the brain is

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24 **R.I.M. Dunbar: The social brain hypothesis and its implications for social evolution. Ann Hum Biol. 2009, 36(5)::562-72. 10.1080/03014460902960289**
Karin Isler and Carel P van Schaik: Metabolic costs of brain size evolution. Biol Lett. . 2006, 2(4): 557-560.. 10.1098/rsbl.2006.0538
Leslie C. Aiello and Peter Wheeler: The expensive tissue hypothesis: the brain and the digestive system in human and primate evolution. Curr. Anthropol. 1995, Volume 36, Number 2: 199-221 (23 pages). 10.1086/204350

25 **Aschoff J, Günther B, Kramer K : Wärmehaushalt und Temperaturregelung.. Schmidt, R.F., Thews, G. (ed): Physiologie des Menschen. Springer-Lehrbuch. Springer, Berlin, Heidelberg; 1995. 10.1007/978-3-662-09334-**

one of the most expensive organs in the body in terms of energy.

Also, compared to other animals, humans have a more powerful brain (in terms of having energy). the human brain demands more than twice as many calories as the chimpanzee brain. also, at least three to five times demands more calories than the brains of squirrels, mice and rabbits.[26] The following photo from Jan Karbowsky 's article shows the above content well.[27] See Figure 1

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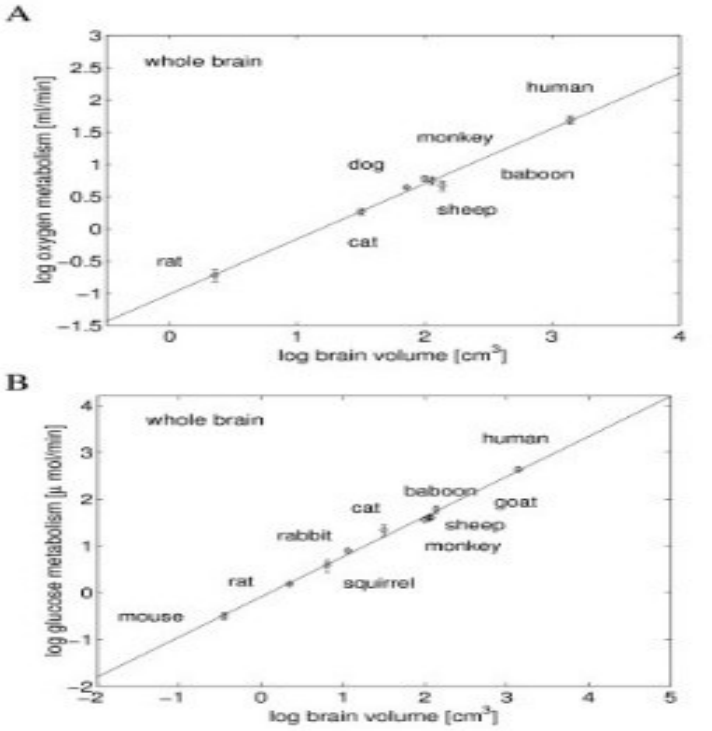
[26] **Doug M Boyer et al.: Internal carotid arterial canal size and scaling in Euarchonta: Re-assessing implications for arterial patency and phylogenetic relationships in early fossil primates. J. Hum. Evol. 2016, 97:123-44. 10.1016.2016.06.002**

Arianna R Harrington et al.: First virtual endocasts of adapiform primates. J Hum Evol . 2016, 99:52-78. 10.1016.2016.06.005

[27] **Jan Karbowski : Scaling of Brain Metabolism and Blood Flow in Relation to Capillary and Neural Scaling. journals.plos. 2011, 6(10):e:26709. 10.1371.0026709.**



See Figure1: human brain at least three to five times demands more calories than the brains of squirrels, mice and rabbits.

In animals, the amount of brain energy consumption increases with the rate of basal metabolism(BMR) While in humans, this increase is not

linear and The amount of brain energy is higher than the basal metabolic rate. In order to justify this energy difference, Various theories have been proposed. You can justify this significant difference with “Connecting Brains with Cosmic Memory” Theory.

About the antenna and satellite

of the brain:

also The spherical state of the brain and other points that I describe has provided the best receiver and transmitter conditions for the brain.

Why, after years of research, does NASA has made most of the new and advanced satellites spherical shape?!

See Figure 2.

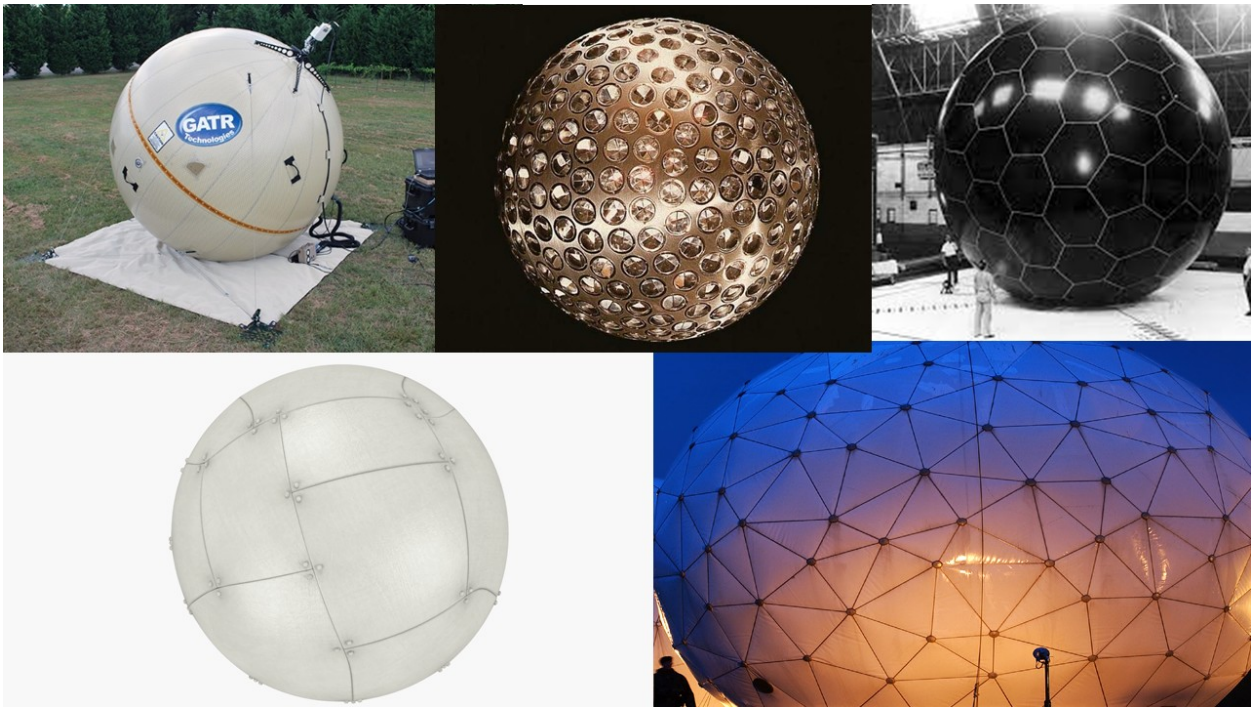


Figure 2; Types of advanced spherical satellites.

Ground to Air Transmit and Receive, Inflatable Satellite Antennas (GATR) is the newest satellite that has been built by the human.

Why did the American Navy, after years of joint research with NASA, has made the most advanced and newest satellites spherical shape?![28]

Because in this case it can Provide satisfy the first condition of the

[28] Sgt. Jeremy Bratt,. Sgt. Jeremy Bratt,: Satellite communications ball promises more bandwidth, greater portability,. army.mil/article. 2017, 2:8. 10.1002/sat.1072

satellite and Make it a very powerful transceiver. [29]The spherical shape of satellite promises more bandwidth and greater portability of waves.[30]

Ground to Air Transmit and Receive, Inflatable Satellite Antennas (GATR) , is actually the latest piece of military satellite communications equipment. This technology is so new that The GATR type 369 Sustainment ball has a single digit serial number.[31]

NASA research makes our work easier; Because there are many articles about the importance of The

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[29] **Cohn, Meredith: "Technology on the Rise: Tustin Firm's Inflatable Antenna Passes a Key Test in Orbit". . Los Angeles Times. . 2013, 20:1996. 10.2495/978-1-85312-941-4/10**

[30] **Alessandra Babuscia, Jonathan Sauder,Jekan Thangavelautham: Inflatable Antenna for CubeSat . The Institute of Electrical and Electronics Engineers, Inc.. 2021, 6:197-231. 10.1002/9781119692720**

[31] **Sgt. Jeremy Bratt: Satellite communications ball promises more bandwidth, greater portability. army.mil/article. 2017, 2:8. 10.1002.1072**

spherical shape of the satellite and more bandwidth and the ability to carry more signals.

And this is a confirmation of our hypothesis that the spherical shape of the human head is probably not accidental and serves an important purpose.

Also, The more experiments you do, the more you will be convinced that the head and body combination and even the details of their morphology can be the best model for making more powerful satellites. You don't need to build a satellite to prove it; Even the smallest details of brain morphology can make a big difference in The quality of receiving satellite waves.

Because not everyone has the ability to build advanced satellites I suggest two experiments To prove my

intentions that are easier to perform than others. These experiments show that Brain morphology details together form a powerful satellite. To perform the above tests, you need a little research and accurate calculation of some numbers.

First test:

Necessary materials: The satellite dish that is connected to the receiver and with which you watch satellite channels. Access to casting tools.

Remove the satellite dish and prepare a Casting mold with its help; We are going to make a new satellite dish; with the difference that its surface be had at least twenty-five ridges like the gyrus of the cerebral cortex. Therefore, with the help of casting, you make a satellite dish similar to the surface of the cerebral cortex. It is obvious that

Dimensions, sizes and How to change are very important; You are probably asking; Why twenty-five the gyruses or ridges?

From the results of the study of books and authoritative academic atlases, it can be concluded that there are approximately sixteen important gyruses on the brain.[32]

The lobes of the brain are the largest gyruses and contain the smaller gyri.[33] There are four main lobes in the brain: the frontal lobe, the parietal lobe, the temporal lobe, and

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[32] **Michael Petrides: Atlas of the Morphology of the Human Cerebral Cortex on the Average MNI Brain. 1 (ed): Elsevier Science, Montreal ; 2018. 100128009322**

Emil Villiger: Brain and Spinal Cord: A Manual for the Study of the Morphology and Fibre-Tracts of the Central Nervous System. Illustrated edition (ed): Nabu Press, Chapman Press; 2010. 109781144432285.

[33] **Jänig, W., Bräunig, P.: Autonomic nervous system in vertebrates and invertebrates. Dudel, J., Menzel, R., Schmidt, R.F. (ed): Springer-Lehrbuch. Springer, Berlin, Heidelberg; 2001. 10.1007/978-3-642-56497-0_9**

the occipital lobe. The insular cortex is often included as the insular lobe.[34]

The limbic lobe is an edge of the cortex on the inner side of each hemisphere and is often included. Also, three lobules of the brain have been described: the paracentral lobule, the superior parietal lobule, and the inferior parietal lobule.[35]

Therefore, a total of nine cerebral lobes or large gyrus can be considered for the brain. which, including sixteen important gyruses, reaches twenty-five gyruses.

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[34] **Nieuwenhuys, R (2012: The insular cortex: a review. Progress in Brain Research. Vol. 195. pp. 123-63. 10.1016/B978-0-444-53860-4.00007-6**

[35] **Tortora, G. J. ; Derrickson, B. : Principles of anatomy & physiology . Wiley. p. 549. ISBN 9780470646083. Tortora, G. J. ; Derrickson, B. (ed): john wiley sons, uk, chichester; 2011. 109780470646083**

Of course, no reliable source has counted the number of gyrus in the brain precisely. We have to calculate the most important of them approximately.

I have divided them into two categories and I have my own classification; Each cerebral hemisphere is divided into five lobes, four of which have the same name as the bone over them: the frontal lobe, the parietal lobe, the occipital lobe, and the temporal lobe. A fifth lobe, the insula or Island of Reil, lies deep within the lateral

sulcus.[36] Other lobes are considered subgyruses. In my opinion, this division is more correct than others. Therefore, there are five main gyruses in the brain, which contains twenty subgyruses.

This means that, the casting mold that we are going to make will be made from five main gyruses. that each of them consists of four smaller gyruses. Or create four smaller gyruses on each big and main gyrus. Try not to concentrate the four gyruses you make on one corner of the main gyrus; it should be spread everywhere with the same intervals.

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[36] **Frank H. Netter.: Atlas of Human Anatomy Including Student Consult Interactive Ancillaries and Guides. Philadelphia, Penn.: W B Saunders Co (ed): Elsevier Inc, Saunders; 2008. 10978-1-4557-0418-7**

Colledge, Nicki R.; Walker, Brian R.; Ralston, Stuart H.; Ralston, eds: Davidson's principles and practice of medicine.. Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston ; illustrated by Robert Britton (ed): Churchill Livingstone/Elsevier, Edinburgh ; New York; 2010. 101516781

By following these tips, make the mold and finally, the new satellite dish.

Test the previous satellite dish in different locations to find the location that will open the fewest TV channels for you. In the test I conducted on the HOTBIRD 13E satellite, with the help of the previous dish, I received less than fifty channels and with the help of the new dish more than 1,200 channels. as you can see,This small change I create in the satellite dish increased the reception power at least twenty-four times. You too, try the new satellite dish in the same place where you received the least number of channels. I am sure that the more delicate your work is, the better the waves reception power of the satellite dish you have made will be. The result of your experiment

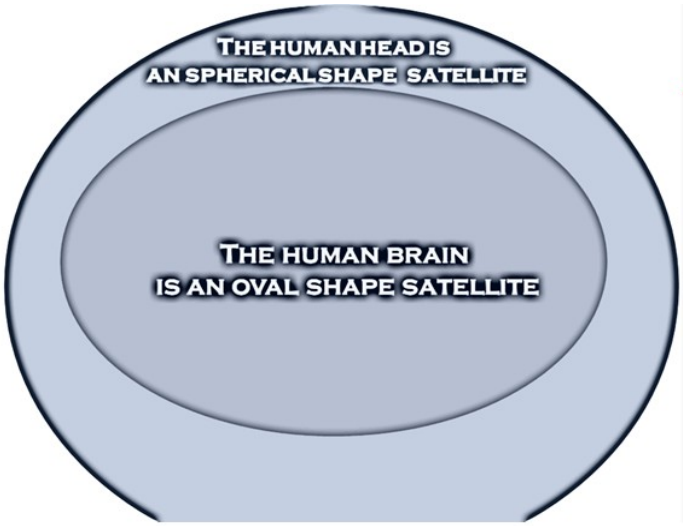
can be much better than the result I got. Because I could not make exactly what I wanted due to the lack of facilities.

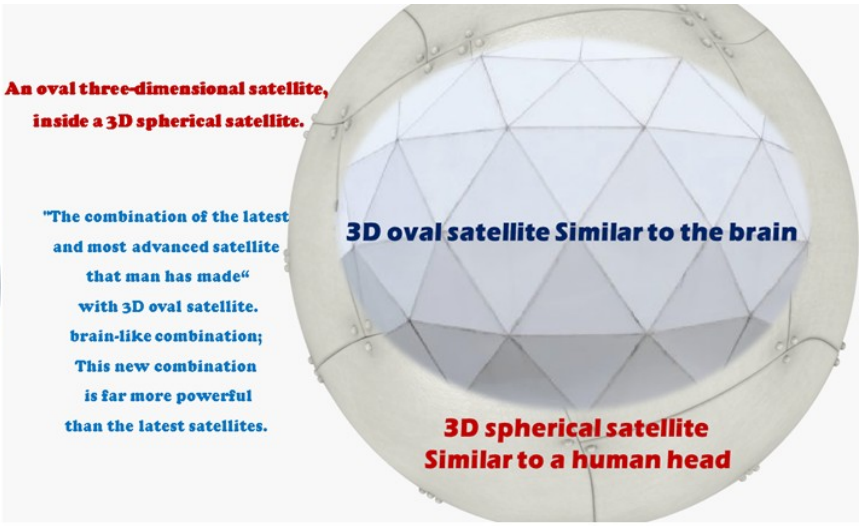
But the above experiments shows that one of the most important tasks that the gyruses of the cerebral cortex do is to increasing the power of receiving waves; That is, the gyruses can help the brain to receive the thought waves spread in the space more powerfully. The main gyruses and the sub- gyruses are numerous, diverse and smaller satellite dishes that strengthen the satellite of the brain. Or at least we can conclude that the gyruses on the brain have such a capability.

Second test:

Necessary materials: A large satellite dish and access to casting tools.

If I had NASA-sized facilities, I would definitely build the most powerful satellite that mankind has ever seen with the help of modeling from brain morphology. Believe me, I'm not Bluffing or joking ! Please look carefully at the outline of the brain and skull; A three-dimensional oval satellite that has be placed inside a spherical three-dimensional satellite! The internal 3D satellite is covered with large and small gyruses. Please refer to figure 3.




An oval three-dimensional satellite,
inside a 3D spherical satellite.
"The combination of the latest
and most advanced satellite
that man has made"
with 3D oval satellite.
brain-like combination;
This new combination
is far more powerful
than the latest satellites.
3D oval satellite Similar to the brain
3D spherical satellite
Similar to a human head

Obviously, by Note-taking from the important points in the human head and brain, much stronger satellites can be made

For example, creating bumps on the oval three-dimensional satellite , like the grooves on cortical

and creating an oval three-dimensional satellite at the end with a ninety degree angle, like the cerebellum

Figure 3;

Obviously, by modeling from the important points inthe morphology of the human head and brain, much strong satellites can be made. Please look carefully at the outline of the brain and skull; A three-dimensional oval satellite that has be placed inside a spherical three-dimensional satellite!

Now add one more point to this smart collection and Add two small 3D heart shaped satellite in a ratio of one to eight, with a ninety degree angle to the bottom end of the inner satellite. I am talking about the cerebellum; A small satellite that has be placed inside a larger satellite at a suitable angle. Please refer to figure4.

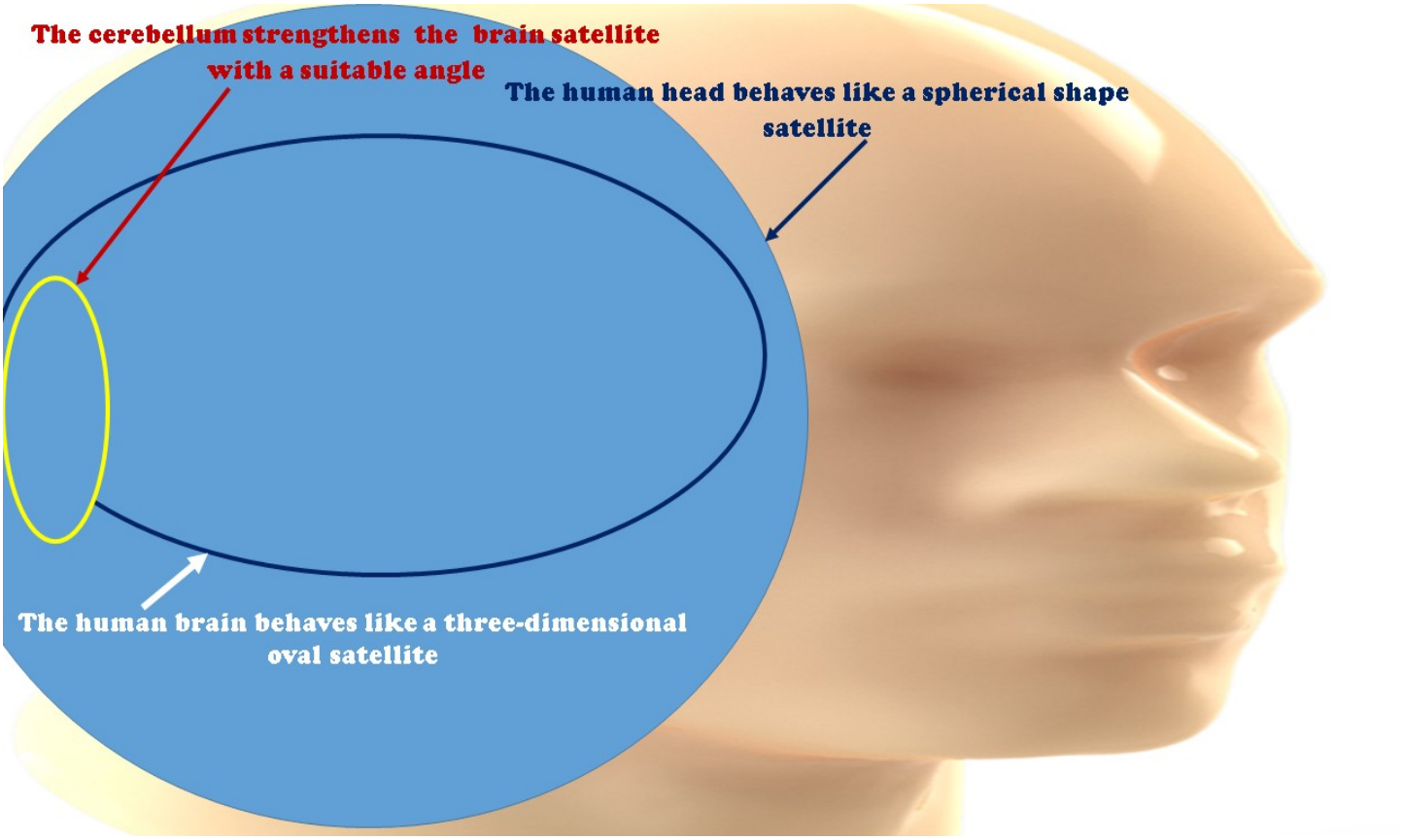

The cerebellum strengthens the brain satellite with a suitable angle
The human head behaves like a spherical shape satellite
The human brain behaves like a three-dimensional oval satellite

Figure 4;

The combination of human head, brain and cerebellum to form a very advanced satellite; The cerebellum satellite strengthens the brain satellite with a suitable angle!

If you do not carefully examine Morphological dimensions of brain components it is unskilful , and if you don't consider some important

and efficient reasons for every simple arrangement (in the brain) it would be foolish. Until today,Study of brain anatomy and morphology have been necessary to know the disease and treat them, but in my opinion, modeling it to create new tools and to reach the highest peaks of life is more necessary . Because these tools and knowledge, such as vaccination, make pale the human need for to therapeutic Topics. Different parts of the brain (From the point of view of morphology) so skillfully and intelligently together are arranged so that countless lessons and tips can be learned from them;

Don't forget that dimensions, sizes, volume ratios, positions, and the type of connection of different organs of the brain are very important If you want to use

Morphological results in modeling and making new tools.

so, Before doing this test, you should know the dimensions of the cerebellum and brain, and calculate their ratio to each other. Also, you should view the angle and type of their collision with each other exactly and their position ; For example, the cerebellum is located at the lower end of the brain that by an angle of almost ninety degrees is connected to the brain stem through the base ; In such a way that the end part of the brain is placed on it. The cerebellum (almost) looks like two three-dimensional triangles that are connected from the base to the brain stem; Suppose two small hearts are connected from the base to the brain stem and the sharp tip of them is free on the sides of the brain stem. in such a way that free parts overlap

with the end and lower part of the brain.

To reach dimensions of the cerebellum compared to the volume of the brain can a simple search on the Internet can find a ratio of one to ten.[37] But this ratios as I mentioned is very important for our experiment and should be calculated more accurately.

In order to reach the ratio of one to ten, they have argued like this; cerebrum is about 800 cubic centimeters and the cerebellum is about 80 cubic centimeters.[38] Whereas, the eminent British anatomist Sir Arthur Keith in 1948 presented 855 cc as the smallest

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[37] **Llinás RR, Walton KD, Lang EJ : Cerebellum. The Synaptic Organization of the Brain. hepard GM (ed): Oxford University Press, New York: ; 2004. 10006159312**

[38] **Guilherme Carvalhal Ribas: The cerebral sulci and gyri. Neurosurg Focus . 2010 , Volume 28: Issue 2:24. 10.3171/2009.11.FOCUS09245**

known human brain volume .[39] As you can see, The diversity of opinions in measuring the volume of the brain and cerebellum is very impressive; Because The volume of the brain and cerebellum is very different depending on gender, weight , life span and different conditions. According to another study, The brain volume in men and women is 94.6 ± 1060.0 and 104.3 ± 1008.9 cubic centimeters, respectively.[40]

Hrdlicka (1939) examined brain size in 12,000 American skulls stored in the collection of the United States

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[39] **Patricia J. Ash, David J. Robinson: The Emergence of Humans: An Exploration of the Evolutionary Timeline. Patricia J. Ash, (ed): Wiley, Hoboken, New Jersey; 2010 . 10.1086/658430**

[40] **Ekinci N, Acer N, Akkaya A, Sankur S, Kabadayi T, Sahin B.: Volumetric evaluation of the relations among the cerebrum, cerebellum and brain stem in young subjects: a combination of stereology and magnetic resonance imaging. Surg Radiol Anat. 2008, 30(6):489-494.. 10.1007/s00276-008-0356-z**

National Museum. The size of the skulls that were not abnormal and primitive was between 910 cubic centimeters and 1050 cubic centimeters.[41]

According to other research[42], The mean (+/-SD) total brain, cerebrum and cerebellum volumes were 1,202.05 +/- 103.51, 1,143.65 +/- 106.25 cm3 in males and females, 1,060.0 +/- 94.6, 1,008.9 +/- 104.3 cm3 in males and females, 117.75 +/- 10.7, 111.83 +/- 8.0 cm3 in males and females, respectively.

According to this research, The volume ratio of cerebellum to

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41 **Aleš Hrdlička: Normal micro- and macrocephaly in America. American journal of physical anthropology. 1939, 25:1-91. 1019648!0**

42 **Nihat Ekinci, Niyazi Acer, Akcan Akkaya, Seref Sankur, Taner Kabadayi, Bünyamin Sahin: Volumetric evaluation of the relations among the cerebrum, cerebellum and brain stem in young subjects: a combination of stereology and magnetic resonance imaging. Surg Radiol Anat journal. 2008, 30:489-94. 10.1007/s00276-008-0356-z. Epub 2008 May 14**

cerebrum in men and women was 11.12 and 11.16 percent.

The variety of numbers in the measurement of the cerebellum and cerebrum is astonishing; But I would rather the ratio of one to eight to the ratios of one to seven until one to eleven which is the ratio of cerebellum to completely healthy brains in the youth age group.

If you want to model exactly from the brain, you need to prepare a casting mold where the two satellite dishes are connected together monolithly. But since this task is very difficult and we just want to prove that the angle of the cerebellum and brain and their ratio to each other increases the power of receiving waves, so we choose a simpler test. try build a satellite dish that One eighth of the volume of

the satellite dish you have (original) Volume be have. The smaller satellite dish should be placed at the lower end of the larger satellite dish at an angle of approximately ninety degrees, so that the smaller satellite dish overlaps with the end and lower part of the bigger satellite dish. Just like Figure 5.

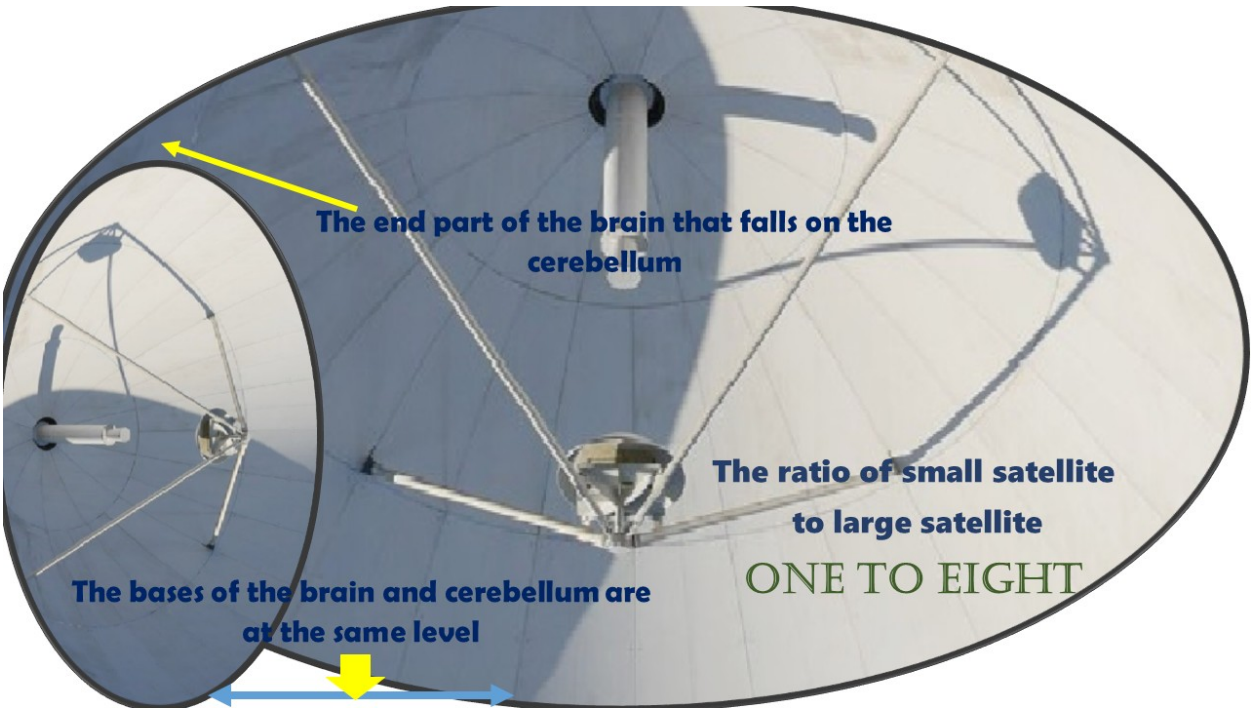
The end part of the brain that falls on the cerebellum
The ratio of small satellite to large satellite
ONE TO EIGHT
The bases of the brain and cerebellum are at the same level

Figure 5;

Figure 5 shows how the brain by creating the right angle with the cerebellum acts like an advanced

satellite . in my opinion, a ratio of one to eight is ideal and it provides conditions so that it can take the most waves from the environment.

I took a common output from two satellite dishes to eventually be connected to a satellite receiver. Consider that the satellite dish I made was not being very subtle and accurate. by making the satellite dish with more careful and elegant you can receive more channels. Even with these results, if you assume that the number of initially opened channels is ten, the reception power of the waves has increased up to eighty times. I am sure that you will get better results from me because you have a more suitable tool.

I have collected the things that causes increasing the power of receiving waves in the brain in below; Each of these cases can provide the

basis for an experiment to you be more convinced that the implementation of the brain, Before any work, has provided a very advanced satellite:

Gyruses that are in the cortical surface.

The angle of the cerebellum with the brain.

The ratio of the volume of the cerebellum to the brain.

The spherical shape of the human head.

The spherical shape of the human head compared to the three-dimensional oval shape of the brain and how their placement in relation to each other.

conclusions

Do the experiments you did prove that the brain is able to communicate with other points like a satellite?!

Can the experiments you did prove that the brain has the ability to receive thought waves spread in space?!

Even in the simplest test, If a few gyruses on the satellite dish can

increase the reception power of the waves is possible the hypothesis that brains communicate with each other to take seriously. However, According to the above tests, there are many valid reasons that convince us to believe in the satellite communication of the brain or the ability to receive waves.

It is possible to prove the satellite communication of brains based on the experiments we did;

Obviously, in order to understand the processes of the complex system of the brain, it is necessary to get help from different branches of science.

To justify the theory of connection between the brain with the cosmic memory, it is very necessary to prove two points;

First; I have taken help from the subjects of physics, especially

quantum mechanics, as well as the morphology of the brain and head, to prove the receiving thought waves by brain satellite.

Second; I have taken help from genetics and electrochemical topics to prove how to transfer thought waves inside and outside the body.

As the FOXP2 transcription factor gene increases the activity of the brain's reward system and increases learning in frontal neurons. According to researchers, because of this gene, the neurons of the human brain are more flexible than other animals (especially in the frontal region).[43] As you can see, Most of the differences between humans and animals can be explained by genetics;

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[43] **Christiane Schreiweis et al.: Humanized Foxp2 accelerates learning by enhancing transitions from declarative to procedural performance. Proc Natl Acad Sci U S A .. 2014, ;111(39):14253-8. 10.1073/pnas.1414542111.**

Many studies were focused on finding differences between humans, chimpanzees and other mammals at the level of gene transcription.[44]

Genetic differences between humans[45] and intelligent mammals,[46] in the past 1.2%.;[47] and according to new studies, 1.23%., and according to

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[44] David Brawand, et al.: The evolution of gene expression levels in mammalian organs. Nature. 2011, 478:343-348.. 10.1038/nature10532

Khaitovich P, et al.: Parallel patterns of evolution in the genomes and transcriptomes of humans and chimpanzees. Science. 2005, 309(5742):1850-4. . 10.1126/science.1108296

Wolfgang Enard, et al.: Intra- and interspecific variation in primate gene expression patterns. Science. 2002, 296(5566):340-3.. 10.1126/science.1068996.

[45] Lander ES, et al.: Initial sequencing and analysis of the human genome. Nature. 2001, 409(6822):860-921. 1038/35057062.

[46] Chimpanzee Sequencing and Analysis Consortium: Initial sequence of the chimpanzee genome and comparison with the human genome. Nature. 2005, 437(7055)::69-87. 1038/nature04072

[47] E D Sverdlov.: Retroviruses and primate evolution. Bioessays. 2000, 22(2):161-71. 10.1002/(SICI)1521-1878(200002)22:2<161::AID-BIES7>3.0.CO;2-X

the deletion and insertion of the genes, it reaches 3%.[48] And this amount is enough to justify the human cognitive differences, including brain satellite communication.

Genes are like to the involuntary and unconscious part of the human brain, for neurons. If they are trained for a certain nervous function, they will definitely do that work. They have shown us many times that doing the most complicated things is easy for them; Provided that the tools or work platform be provide for them.

As the atomic particles, electrochemical mediators, brain morphology, head, their components and even the morphological state of the human body speak of a common

[48] **Chimpanzee Sequencing and Analysis Consortium: Initial sequence of the chimpanzee genome and comparison with the human genome. Nature. 2005, 437(7055):69-87. 1038/nature04072.**

ability: They are able to receive waves and analyze the wavelength of your thoughts!

Discussion

Why does brain is susceptible to receiving waves?! Why do I insist that brain morphology is designed for this work?! Let me answer you with this question;

How do negative thoughts invade your brain without your will?! It doesn't matter who pours them into our minds! More importantly, how does our brain receive them?! How can one brain communicate with other brains ?! and what tools does it need to does this ?! Your brain to

communicate with other brains, first of all, it must have a strong receiver.

Suppose brains are connected to each other like satellite communication; In this case, the brain of each of you can be likened to a dish and satellite receiver that opens thousands of thought channels for you. With its help, you can watch thousands of intellectual channels on the mind monitor! Satellites installed around the earth Like the brains of those around you, they emit waves of thought in space; The dish or cortex of your brain receives the waves; and sends it to a receiver or deeper parts of the brain for processing. Interaction between Satellite receiver device and the satellite dish (deeper part of the brain and the cortical part of the brain) cause you be able watch thoughts in the mind monitor; or

understand thoughts in the form of real images.

standing mode and microphone-shape of human cause increase ability of receiving waves. In addition, Spherical shape of the head increases its ability to receive. The brain is oval and three-dimensional and this helps increase the receive of waves in it. In this case, the gyruses at the top of the brain can also increase the power of receiving waves and have a very important task. By accepting this hypothesis, all morphological states of the brain become purposeful or gain meaning. Also, you will have answers to all the difficult questions; From how brains communicate with each other to how to travel to the future or the past with the help of the mind, (Of course, in my theory, I call the mind the cosmic memory).

Of course, Catching the thought waves of others and Reasoning, requires to more Clever tools . the human physical state and 3D dish is not enough ; for example, changes in the genome world of cortical neurons must occur Or motor sensory tentacles of neocortical neurons must have a coordinated movement So that the three-dimensional dish of the brain is able to receive and understand the thoughts of others. (which I will discuss in detail in the appropriate place)

Why is the neocortex very important for brain satellite communication?! The neocortex in humans is , 90% of the cerebral cortex and 76% of the entire brain.[49] so, is the outermost

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[49] **Noback, Charles R, et al.: The Human Nervous System [electronic resource] : Structure and Function. Charles R. Noback, David A. Ruggiero, Robert J. Demarest, Norman L. Strominger. (ed): Humana Pr Inc, Florida ; 2005. 1007/978-**

and most extensive part of the brain. It is also is the most developed in its organisation and number of layers, of the cerebral tissues.[50] According to the research of scientists, a high ratio of neocortex to brain is thought to correlate with a number of social variables such as group size and the complexity of social mating behaviors.[51] So, the name neocortex has linked with interaction and this is another confirmation of the possibility of its interaction with the thoughts published in space. (To understand this, you should read the article "The Law of Interaction"; which I will publish soon.) The neocortex is involved in higher brain

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1-59259-730-7

[50] W.A. Newman Dorland : DORLAND'S ILLUSTRATED MEDICAL DICTIONARY. Penny Gosling, (ed): Elsevier Saunders, Philadelphia; 2003. 1016/j.hlc.2004.03.003

[51] Dunbar RI (1995: Neocortex size and group size in primates: A test of the hypothesis. Journal of Human Evolution. 28. 3:287-96. 10.1006/jhev.1995.1021

functions such as sensory perception, cognition, motor command generation, spatial reasoning, and language.[52] I have called the set of above functions human superior perception or semantic perception. (What I mean by semantic understanding is not its conventional meaning Rather, it is the set of the above functions, or the same superior human perception. According to a theory, I have abbreviated called HMT it . abbreviated of "human magical talent")

human semantic perception comes from the neocortex. Therefore, there are several reasons and evidences that to understand the satellite

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52 **Lodato S, Arlotta P (2015-11-13: Generating neuronal diversity in the mammalian cerebral cortex. Annual Review of Cell and Developmental Biology. 31. 1:699-720. 10.1146/annurev-cellbio-100814-125353**

Lui JH, Hansen DV, Kriegstein AR (July 2011: Development and evolution of the human neocortex. Cell. 146. 1:18-36. 10.1016/j.cell.2011.06.030

communication of the brain, it is better to we start from the neocortex. I never mean that the neocortex is merely a receiver of thought waves; Although the gyruses on the cortical are designed to receive waves.

As I will explain in detail in the appropriate place, cortex of brain is the largest common experiential memory of humans and mammals. The position of the cortical is very important for us because it is in the neighborhood of cosmic memory or semantic memory that is specific to humans. Or the gyruses of the cortical, like a fingerprint, is the exclusive birth certificate of any mammal or human. All human brains have the same overall pattern of main gyri and sulci, although they

differ in detail from one person to another.[53]

So the cortical has other important tasks. But receiving waves is one of the most important of them;

Of all the mammals studied to date (including humans), a species of oceanic dolphin known as the long-finned pilot whale has been found to have the most neocortical neurons.[54] However, the, only humans have semantic perception. (or the same superior human perception) Therefore, the size and number of neocortex neurons may be the reason for greater interaction But it cannot prove the superiority of human

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[53] **Moerel M, De Martino F, Formisano E (2006: An anatomical and functional topography of human auditory cortical areas. Front. Neurosci. 8. 225:225. 10.3389/fnins.2014.00225**

[54] **Mortensen HS, Pakkenberg B, Dam M, Dietz R, Sonne C, Mikkelsen B, Eriksen N (2014: Quantitative relationships in delphinid neocortex. Frontiers in Neuroanatomy. 8:132. 10.3389/fnana.2014.00132**

perception over whales and other intelligent mammals.

There are many people who have minimal interaction with others throughout their lives; So much so that the interaction of dolphins is far more than them! There are also many people who have spoken to other humans less than chimpanzees.

If you be sharp and smart it can be concluded from the above comparisons that interaction or language is the factor of relative superiority of intelligent mammals; Not the cause of the absolute superiority of human understanding. So it is better to find a stronger and more valid reason to prove the superior human understanding.

receiving waves by cortex of brain is a only unique feature that separates

the human path from the intelligent mammals.

intelligent mammals have more gyruses and grooves than others. [55] Mammals that live socially and with their counterparts interact more intelligently have more grooves on the surface of the brain![56] But this increase interaction never leads to creativity and cognitive superiority of them Towards humans. Because it is the genetics of neurons that gives purpose to this interaction or makes it productive. Also, most likely they

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[55] Herculano-Houzel S: The human brain in numbers: a linearly scaled-up primate brain. Frontiers in Human Neuroscience. 2009, 3:31. 10.3389/neuro.09.031.2009

Georg F Striedter: Précis of principles of brain evolution . Georg F Striedter (ed): Sinauer Associates Inc, Oxford University ; 2005. 1017/S0140525X06009010

[56] Rakic P: Evolution of the neocortex: a perspective from developmental biology. Nature Reviews Neuroscience. 2009, 10:724-735. 10.1038/nrn2719

Geschwind DH, Rakic P: Cortical evolution: judge the brain by its cover. Neuron. 2013, 80:633-647. 10.1016/j.neuron.2013.10.045

cannot communicate with the cosmic memory. But whatever the main reason is, it is related to genetic differences and genetic superiority of humans.

I will explain in the appropriate place that creativity is a genetic ability. Social consciousness, cognitive ability, and other traits are enhanced or weakened by the amount of animal creativity. in each of the neurons in the human or ape brain, creativity has defined in dimensions genetic. The multiplicity and diversity of genes Related to creativity determine how creative each one is. Most likely, 1.23 [57]or 3 [58]percent

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[57] **C.S.a.A: Initial sequence of the chimpanzee genome and comparison with the human genome.. Nature. 2005, 437(7055)::69-87.. 103804072.**

[58] **Maria V Suntsova , Anton A Buzdin: Differences between human and chimpanzee genomes and their implications in gene expression, protein functions and biochemical properties of the two species. BMC Genomics . 2020, 21(Suppl 7)::535. 10.1186/s12864-020-06962-8.**

difference in the genomes of human brain neurons with other animals,[59] more than any other trait, is related to the genotype of creativity and neurons that are involved in brain satellite connections . For the same reason, monkeys are able to make simple tools (limited creativity) but they do not have the ability to Advanced creativity. they can not farm and livestock. Or they cant be create other alive creatures.

So in short, The human neocortex is the main part of a highly advanced satellite that its component neurons are stratified horizontally into six layers in which neurons and their branched processes (dendrites) assume a parallel orientation to each

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[59] **It was found that genome differences represented by single nucleotide alterations formed 1.23% of human DNA, that with larger deletions and insertions constituted 3% of our genome. (2020). Accessed: 10 September : https://bmcgenomics.biomedcentral.com/articles/10.1186/s12864-020-06962-8.**

other.; [60] **Neurons of the neocortex and their components genetically are engineered to capture waves! Imagine, the six layers of neurons that are hidden in the grooves increase the Waves reception power like very precise chips with their special shape and state. I believe that the neocortex is like an electronic component containing millions of ICs; especially, in layer one, that contains millions of vertical and parallel dendritic branches; they are arranged regularly and parallel in next to the each other. Their Parallel mode and order are so important that a small change can cause serious behavioral damage in you.**[61] **such as the**

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[60] **L. Petreanu, T. Mao, S. M. Sternson, K. Svoboda,: The subcellular organization of neocortical excitatory connections. . Nature. 2009, 457(7233):1142-5. . 1038/nature07709.**

[61] **W E Kaufmann , H W Moser: Dendritic anomalies in disorders associated with mental retardation. Cereb.**

morphological change of dendritic spines which happens due to the abnormal morphology of their spine.[62] These changes have been reported as a result of several neurodevelopmental disorders, including fragile X syndrome;[63] Often these disorders are associated with limited intellectual functions and can be a confirmation that the satellite communication of the brain is not working properly. just as in the very regular structure of the satellite, even can not ignored the

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Cortex. 2000 , 10(10):981-91.. 1093/cercor/10.10.981.

62 S. Schuster, M. Rivalan and et : NOMA-GAP/ARHGAP33 regulates synapse development and autistic-like behavior in the mouse. Mol Psychiatry .. 2015 , 20(9):1120-31.. 1038/mp.2015.42

63 Rudelli R.D., Brown W.T., and et: Adult fragile X syndrome. Clinico-neuropathologic findings. Acta Neuropathol. 1985, 67(3-4):289-95.. 1007/BF00687814.

Hinton V.J., Brown W.T., Wisniewski K., Rudelli R.D: Analysis of neocortex in three males with the fragile X syndrome. Am J Med Genet . . 1991, 41(3)::289-94.. 1002/ajmg.1320410306

bases order of one IC cannot be ignored the parallel state of dendritic receptors of neurons too! The main function of these neurons, such as a ICs of a CPU, is to intelligently p rocess and transmit information; The mammalian neocortex is an extremely complex, highly organized, that contains hundreds of different neuronal cell types. Within the neocortex, distinct populations of projection neurons are located in different cortical layers and areas, have unique morphological features, express different complements of transcription factors, and ultimately serve different functions.[64] What is the reason for all this variety and unique complexity?! What the distinct and important task does the

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64 **Molyneaux BJ, Arlotta P, Menezes JR, Macklis JD 2007. Neuronal subtype specification in the cerebral cortex. Nat Rev Neurosci 8: 427–437**

cerebral cortex have that requires a unique structure?! What is the important message of parallel and vertical dendritic trees built on six horizontal layers? The dendritic arbor is the site of information input and processing of the neuron. The complexity and scope of the dendritic arbor are subtype-specific and determine the richness of neuronal interactions.[65] Almost all scientists agree on the complexity of the structure of the neocortex; Doesn't this complexity of the structure indicate the specificity of the function of the human neocortex? If the answer be yes, in the satellite communication of the brain, which layer becomes more important?!

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[65] **Marta Rosário, Steffen Schuster, René Jüttner, Srinivas Parthasarathy,Victor Tarabykin, and Walter Birchmeie: Neocortical dendritic complexity is controlled during development by NOMA-GAP-dependent inhibition of Cdc42 and activation of cofilin. Genes Dev. 20121, 26:1743-1757. 10.1101/gad.191593.112**

Does this layer provide the necessary conditions for trans-brain or extracerebral communications?!

Layers one, four, and six play the second role of the neocortex in humans; which is considered the first and main role in animals; These layers From the memory connection of the cerebral cortex with the thalamus of processor of experiences [66] create experiential understanding; In an article with the same title, the cerebral cortex can be introduced as an experiential memory and the thalamus as a processor of animal

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66 **Rubio-Garrido P, Pérez-de-Manzo F, Porrero C, Galazo MJ, Clascá F (2009: Thalamic input to distal apical dendrites in neocortical layer 1 is massive and highly convergent. Cereb Cortex. 19:2380-95. 10.1093/cercor/bhn259**

Jones EG (1998: Viewpoint: the core and matrix of thalamic organization. Neuroscience. (1998), 85 (2):331-45. 1016/S0306-4522(97)00581-2

Otto Detlev Creutzfeldt : Cortex Cerebri, Die allgemeine strukturelle Organisation des Neocortex . Springer-Verlag. 1995, 174:45-91. 10.3174/ajnr.A0496.

and human experiences. But the subject of this article is not the analysis of the experiential understanding; And in the satellite communication of the brain, the outermost layer is more important than any other layer. that's mean, Layer one, in addition to Consolidation of empirical understanding, also plays a role in the formation of brain satellite communications (or the formation of superior human understanding).

All the components of the first layer play an important role in the formation of semantic understanding and satellite communication of the brain; For example, the connection of this layer with the thalamus[67] makes it possible to understanding

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[67] **Jones EG (1998: Viewpoint: the core and matrix of thalamic organization. Neuroscience. 85:331-45. 10.1016/S0306-4522(97)00581-2**

that part of the experience that is mixed with semantic understanding; This process helps to stabilize and last your experiences.[68] In proportion to the importance of each experience, the brain guarantees its permanence and consolidation. Understanding the importance of each experience is done through the consequent of information received from environmental conditions and genetic processes (gene expression or transcription, etc. . . This is an important issue that requires a separate article and there is no time to explain it in detail in this article. For example, we use genes that are able to analyze information and generate memory. Genes in neurons or in body cells do exactly what the brain does for mammals.).

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[68] **A. Holtmaat, K. Svoboda: Experience-dependent structural synaptic plasticity in the mammalian brain. Nat. Rev. Neurosci. 2009, 10(9):647-58. 1038/nrn2699.**

dendritic trees are the main actors of this layer in the formation of the brain satellite connections. What makes layer one dendritic trees so important is the dendritic spines. Dendritic spines are the principal postsynaptic targets for excitatory synapses.[69] that's mean, there must be a stimulus in the outermost part of the brain that can activate these principal postsynaptic targets.

Another point is that dendritic spine formation occurs during the late stages of development after neuronal connectivity has been established.[70] Why are some parts of the brain not active when it is formed? Why are some parts of the

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69 **Harris K.M.,: Structure, development, and plasticity of dendritic spines. Curr Opin Neurobiol . 1999, 9(3):343-8. 1016/s0959-4388(99)80050-6.**

70 **Fiala J.C., Feinberg M., Popov V., Harris K.M: Synaptogenesis via dendritic filopodia in developing hippocampal area CA1. J Neurosci .. 1998, 18(21):8900-11.. 10.1523/JNEUROSCI.18-21-08900.1998.**

brain activated after full maturity?! this point is important to that reason these dendritic spines are able to absorb thought waves spread in space; And to do it, they have to mature. it is obvious, that an incomplete satellite is not able to receive and resend waves; Therefore, the satellite system of the brain is activated when it is complete and mature. Dendritic spines and parts of the brain that communicate with the outside world become active when the brain is fully mature .

Dendritic spines are the gateways to the satellite system of the brain. In fact, the satellite system of the brain is activated when its components are complete and mature. The fact that dendritic spines are activated at the end of brain formation can also be a reason for the possibility of their

connection with the outside world. To introduce the nature of dendritic spines, this quote is comprehensive and complete; Before the appearance of mature spines, dendrites exhibit long[71], thin filopodia-like protrusions without a bulbous head. As the brain matures, these dendritic filopodia disappear, and spines, which typically have mushroom-like and stubby shapes, begin to appear.[72] Primary cultures of rat hippocampal neurons provide an excellent system in which the process of spine formation can be

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[71] M. Matsuzaki, N. Honkura, G.C. Ellis-Davies, H. Kasai: Structural basis of long-term potentiation in single dendritic spines. Nature. 2004, 429(6993):761-6.. 1038/nature02617. Epub 2004 Jun 9.

[72] N E Ziv , S J Smith: Evidence for a role of dendritic filopodia in synaptogenesis and spine formation. Neuron. 1996, 17(1):91-102. . 1016/s0896-6273(00)80283-4.

Boyer C., Schikorski T., Stevens C.F: Comparison of hippocampal dendritic spines in culture and in brain. J. Neurosci. 1998, 18(14):5294-300. 10.1523/JNEUROSCI.18-14-05294.1998.

studied in vitro.[73] Dendritic spines are small protrusions on the surface of dendrites[74] that receive the majority of excitatory synapses, and changes in their morphology are implicated in synaptic plasticity[75] and long-term memory.[76]

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[73] **Papa M., Bundman M.C., Greenberger V., Segal M: Morphological analysis of dendritic spine development in primary cultures of hippocampal neurons. J. Neurosci. 1995, 15(1 Pt 1:1-11.. 10.1523/JNEUROSCI.15-01-00001.1995.**

[74] **J.N. Bourne, K.M. Harris: Balancing structure and function at hippocampal dendritic spines,. Annu. Annu Rev Neurosci .. 2008, 31:47-67.. 10.1146/annurev.neuro.31.060407.125646.**

[75] **K. Okamoto, T. Nagai, A. Miyawaki, Y. Hayashi: Rapid and persistent modulation of actin dynamics regulates postsynaptic reorganization underlying bidirectional plasticity. Nat Neurosci . 2004, 7(10):1104-12.. 1038/nn1311**

[76] **K M Harris: Structure, development, and plasticity of dendritic spines. Curr Opin Neurobiol. 1999, 9(3:343-8.. 1016/s0959-438880050-6.**

Hering H, Sheng M: Dendritic spines: structure, dynamics and regulation. Nat Rev Neurosci. 2001, 2(12):880-8.. 1038/35104061.

Yuste R, Bonhoeffer T: Morphological changes in dendritic spines associated with long-term synaptic plasticity. Annu Rev Neurosci. 2001, 24:1071-89..

What are the characteristics of dendritic spines that can absorb thought waves spread in space?!

Dendritic spines are the main part of synaptic structures;[77] Dendritic spines undergo dynamic changes in size and shape during activity-dependent synaptic modification and behavioral learning.[78] the structural plasticity of spines is thought to be a key mechanism to change the synaptic efficacy

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10.1146/annurev.neuro.24.1.1071.

Carlisle HJ, Kennedy MB: Spine architecture and synaptic plasticity. Trends Neurosci. 2005, 28(4):182-7.. 1016/j.tins.2005.01.008.

[77] Morgan Sheng, Casper C Hoogenraad: The postsynaptic architecture of excitatory synapses: a more quantitative view. Annu. Rev. Biochem. 76:823-47. . 10.1146/annurev.biochem.76.060805.160029.

[78] R. Yuste, T. Bonhoeffer: Morphological changes in dendritic spines associated with long-term synaptic plasticity. Annu. Rev. Neurosci. 2001, 24:1071-89.. . 10.1146.24.1.1071.

T.F. Roberts, K.A. Tschida, M.E. Klein, R. Mooney: Rapid spine stabilization and synaptic enhancement at the onset of behavioural learning. Nature. 2010, 463(7283). :948-52. 1038/nature08759.

underlying learning and memory.[79] High precision tracking of synaptic structures can give hints about the dynamic nature of memory[80] and help us understand how memories evolve both in biological and artificial neural networks.[81] The structure of a dendritic spine correlates with its functional efficacy. So, to better understand dendritic spines, we follow the dendritic spine. Dendritic spines owe their flexibility to a large extent

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[79] Miquel Bosch , Yasunori Hayashi: Structural plasticity of dendritic spines. Curr. Opin. Neurobiol. 2012, 22(3):383-8. . 1016/j.conb.2011.09.002.

H. Kasai, M. Fukuda, S. Watanabe, A. Hayashi-Takagi, J. Noguchi: Structural dynamics of dendritic spines in memory and cognition. Trends Neurosci. 2010, 33(3):121-9.. 1016/j.tins.2010.01.001.

[80] R. Lamprecht, J. LeDoux,: Structural plasticity and memory. Nat. Rev. Neurosci. 2004, 5(1):45-54.. 1038/nrn1301.

[81] Ali Özgür Argunşah, Ertunç Erdil, Muhammad Usman Ghani, Yazmín Ramiro-Cortés, Anna F : Inbal Israely & Devrim Ünay,. An interactive time series image analysis software for dendritic spines,.. Scientific Reports . . 2022, 12(1):12405.. 1038/s41598-022-16137-y.

to actin;[82] Disturbance in any of its components can cause a disturbance in the cell spine;[83] As, dysregulation of the activity-dependent spine plasticity has been implicated in neuropsychiatric disorders, such as intellectual disability, autism spectrum disorder, and Alzheimer's disease.[84]

The main constituent of dendritic spines and their Spine is actin. Also, effective factors that play a key role in actin regeneration in spines can be very decisive in synaptic plasticity. such as the Arp2/3 complex, formins, profilin,

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[82] Pirta Hotulainen1, Casper C Hoogenraad: Actin in dendritic spines: connecting dynamics to function. J. Cell Biol. 2010, 189(4)::619-29.. 1083/jcb.201003008

[83] J. Nishiyama, R. Yasuda: Biochemical computation for spine structural plasticity,.. Neuron. 2015, 87(1):63-75. 1016/j.neuron.2015.05.043

[84] M.P. Forrest, E. Parnell, P: Dendritic structural plasticity and neuropsychiatric disease. Nat. Rev. Neurosci. 2019, 19(4):215-234.. 1038/nrn.2018.16

and ADF/cofilin.[85] The rapid assembly and disassembly of actin causes the formation of dendritic spines and their morphological plasticity.[86] Spines develop around the time of synaptogenesis and are dynamic structures that continue to undergo remodeling over time.[87] Changes in spine morphology and density influence the properties of neural circuits. Our knowledge of

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[85] J. Nishiyama, R. Yasuda: Biochemical computation for spine structural plasticity,.. Neuron. 2015, 87(1):63-75.. 1016/.neuron.2015.05.043

W. Lei, O.F. Omotade, K.R. Myers, J.Q. Zheng: Actin cytoskeleton in dendritic spine development and plasticity. Curr. Opin. Neurobiol. 2016, 39:86-92.. 1016/j.conb.2016.04.010

[86] Iryna M Ethell , Elena B Pasquale: Molecular mechanisms of dendritic spine development and remodeling. Prog Neurobiol. 2005, 75(3):161-205.. 1016/j.pneurobio.2005.02.003.

Lippman J, Dunaevsky A: Dendritic spine morphogenesis and plasticity. J Neurobiol. 2005, 64(1):47-57. 1002/neu.20149

[87] T. Saneyoshi, H. Matsuno, A. and etc: Reciprocal activation within a kinase-effector complex underlying persistence of structural LTP. Neuron. 2019, 102(6):1199-1210.e6.. 1016/j.neuron.2019.04.012

the structure and function of dendritic spines has progressed significantly since their discovery over a century ago, but many uncertainties still remain. For example, several different models have been put forth outlining the sequence of events that lead to the genesis of a spine.[88] Although the molecular mechanisms that govern spine morphogenesis are not completely understood, But in general, several different physiological and molecular factors have been shown to affect spine morphology.[89] Physiological factors include synaptic activity[90] and

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[88] **Iryna M Ethell , Elena B Pasquale: Molecular mechanisms of dendritic spine development and remodeling. Prog Neurobiol. 2005, 75(3):161-205. 1016/.pneurobio.2005.02.003.**

[89] **Maletic-Savatic M., Manilow R., Svoboda K: Rapid dendritic morphogenesis in CA1 hippocampal dendrites induced by synaptic activity. Science. 1999, 283(5409):1923-7.. 10.1126/science.283.5409.1923.**

[90] **Ethell IM, Irie F, Kalo MS, Couchman JR, Pasquale EB, Yamaguchi Y: EphB/syndecan-2 signaling in dendritic spine**

plasticity.[91] molecular factors[92] include :

1- actin filament reorganization[93]
2- calcium dynamics[94]

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morphogenesis. Neuron. 2001, 31(6):1001-13. . 1016/s0896-6273(01)00440-8

[91] Engert F., Bonhoeffer T: Dendritic spine changes associated with hippocampal long-term synaptic plasticity. Nature. 1999, 399(6731):66-70.. 10.1038/19978

[92] A.D. Levy, M.H. Omar, A.J. Koleske: Extracellular matrix control of dendritic spine and synapse structure and plasticity in adulthood. Front. Neuroanat. 2014, 8:116.. 10.3389/fnana.2014.00116

A. Dityatev, M. Schachner, P. Sonderegger: The dual role of the extracellular matrix in synaptic plasticity and homeostasis. Nat. Rev. Neurosci. 2010, 11(11):735-46.. 10.1038/nrn2898

S. Hirano, M. Takeichi: Cadherins in brain morphogenesis and wiring. Physiol. Rev. 2012, 92(2) :597-634.. 10.1152/physrev.00014.2011

[93] Matus A.,: Postsynaptic actin and neuronal plasticity. Curr. Opin. Neurobiol. 1999, 9(5):561-5.. 10.1016/S0959-4388(99)00018-5

Halpain S: Actin and the agile spine: how and why do dendritic spines dance?. Trends Neurosci. 2000, 23(4):141-6. . 10.1016/s0166-2236(00)01576-9

[94] Segal I., Korkotian I., Murphy D.D: Dendritic spine formation and pruning. Trends Neurosci. 2000, 23(2):53-7.. 10.1016/s0166-2236(99)01499-x

3- and protein phosphorylation[95]

As you can see, actin plays a role in most structures and processes of dendritic spines. actin play an important role in the division of neurons, the migration of neurons during embryonic development, swallowing particles , etc.[96] In order to understand the importance of actin's functions, it is enough to briefly mention the migration of neurons; Various neuronal diseases such as mental retardation, lissencephaly, epilepsy, and

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Yuste, R., Majewska, A., and Holthoff, K. (2000: From form to function: calcium compartmentalization in dendritic spines. Nat. Neurosci. 2000, 3(7):653-9.. 10.1038/76609

[95]Murphy D.D., Segal M: Morphological plasticity of dendritic spines in central neurons is mediated by activation of cAMP response element binding protein., . Proc Natl Acad Sci U S A.. 1997, 94(4):1482-1487.. 10.1073/pnas.94.4.1482

[96]Iryna M Ethell , Elena B Pasquale: Molecular mechanisms of dendritic spine development and remodeling. Prog Neurobiol. 2005, 75:161-205. 10.1016/j.pneurobio.2005.02.003

schizophrenia have been linked to neuronal migration defects during development.[97] A multitude of molecules have been implicated in dendritic spine development and remodeling suggesting that intricate networks of interconnected signaling pathways converge to regulate actin dynamics in spines.[98] This complexity is not surprising, given the likely importance of dendritic spines in higher brain functions. In this review, we discuss the actin protein molecules that play a major role in the spine structure of dendritic synapses;

Actin was first in 1942 has isolated from muscle cells;Actin covers

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[97] **Ayala R., Shu T., Tsai L.H., Shu T., Tsai L.H., Tsai L.H: Trekking across the brain: The journey of neuronal migration. Cell. 2007, 128(1):29-43. . 10.1016/j.cell.2006.12.021**

[98] **L.E. Dansie, I.M. Ethell: Casting a net on dendritic spines: the extracellular matrix and its receptors. Dev. Neurobiol. 2011, 71(11):956-981.. 10.1002/dneu.20963**

approximately 20% of the total cellular protein in the body. It also, comprises 5 to 10% of the total body protein.[99] Also, it is the main component of muscle cells, neurons, actin filaments and cytoskeleton. In addition, a large amount of actin has accumulated in dendritic spines. The main material is the cytoskeleton, most of the cells in the body are made of actin. Actin is a protein or a monomer that creates actin filaments when polymerized. Globular protein what made of 375 amino acids, a water-soluble globular structural protein with a molecular weight of 42 kDa,.[100] Actin participates in many important

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[99] **Lodish HF, Berk A, Kaiser C, et al. : Molecular Cell Biology. Molecular Cell Biology (Eighth (ed): W. H. Freeman, New York:; 2016. 10.4236/jbise.2013.66083**

[100] **Vindin H, Gunning P: "Cytoskeletal tropomyosins: choreographers of actin filament functional diversity". . Journal of Muscle Research and Cell Motility. 2013, 34(3-4)::261-274. 10.1007/s10974-013-9355-8**

cellular processes, including muscle contraction,[101] cell motility, cell division and cytokinesis,[102] vesicle and organelle movement , cell signaling, and the establishment and maintenance of cell junctions and cell shape. Many of these processes are mediated by extensive and intimate interactions of actin with cell membranes.[103] Actin is widely involved in the control of gene

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[101] **Lodish HF, Berk A, Kaiser C, et al.: Molecular Cell Biology. (Eighth ed). Krieger M, Bretscher A, Ploegh H, (ed): W. H. Freeman, New York; 2016. . 10.4236/.2013.66083**

[102] **Fujiwara K, Porter ME, Pollard TD (Oct 1978: "Alpha-actinin localization in the cleavage furrow during cytokinesis". The. Journal of Cell Biology. 79. 1:268-275. 10.1083/jcb.79.1.268**

Pelham RJ, Chang F (Sep 2002: Actin dynamics in the contractile ring during cytokinesis in fission yeast. Nature. 419. 6902:82-86. 10.1038/nature00999

[103] **Doherty GJ, McMahon HT (2008: Mediation, modulation, and consequences of membrane-cytoskeleton interactions. Annual Review of Biophysics. 37. 1:65-95. 10.1146/annurev.biophys.37.032807.125912**

expression and transcription.[104] Mammals have at least six distinct actin genes: four are expressed in different types of muscle and two are expressed in non-muscle cells.[105] However, all actins are very similar in

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104 **Hofmann WA, Stojiljkovic L, Fuchsova B, Vargas GM, Mavrommatis E, Philimonenko V, Kysela K, Goodrich JA, Lessard JL, Hope TJ, Hozak P, de Lanerolle P (Nov 2004: Actin is part of pre-initiation complexes and is necessary for transcription by RNA polymerase II. Nature Cell Biology. 6. 11:1094-1101. 10.1038/ncb1182**

Percipalle P, Visa N (Mar 2006: "Molecular functions of nuclear actin in transcription". The. Journal of Cell Biology. 172. 7:967-971. 10.1083/jcb.200512083

Philimonenko VV, Zhao J, Iben S, Dingová H, Kyselá K, Kahle M, Zentgraf H, Hofmann WA, de Lanerolle P, Hozák P, Grummt I (Dec 2004: Nuclear actin and myosin I are required for RNA polymerase I transcription. Nature Cell Biology. 6. 12:1165-1172. 10.1038/ncb1190

Ferrai C, Naum-Onganía G, Longobardi E, Palazzolo M, Disanza A, Diaz VM, Crippa MP: Scita G, Blasi F (Aug 2009). "Induction of HoxB transcription by retinoic acid requires actin polymerization". Molecular Biology of the Cell. 20. 15:3543-3551. 10.1091/mbc.E09-02-0114

Xu YZ, Thuraisingam T, Morais DA, Rola-Pleszczynski M, Radzioch D (Mar 2010: Nuclear translocation of beta-actin is involved in transcriptional regulation during macrophage differentiation of HL-60 cells. Molecular Biology of the Cell. 21. 5:811-820. 10.1091/mbc.E09-06-0534

amino acid sequence. For example, yeast actin is 90% identical in amino acid sequence to the actins of mammalian cells.[106] An actin protein is the monomeric subunit of two

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Miyamoto K, Pasque V, Jullien J, Gurdon JB (May 2011: Nuclear actin polymerization is required for transcriptional reprogramming of Oct4 by oocytes. Genes & Development. 25. 9:946-958. 10.1101/gad.615211

Huang W, Ghisletti S, Saijo K, Gandhi M, Aouadi M, Tesz GJ, Zhang DX, Yao J, Czech MP, Goode BL, Rosenfeld MG, Glass CK (Feb 2011: "Coronin 2A mediates actin-dependent de-repression of inflammatory response genes". Nature. 470 (. 7334:414-418. 10.1038/nature09703

Miyamoto K, Gurdon JB (Sep 2011: Nuclear actin and transcriptional activation. Communicative & Integrative Biology. 4. 5:582-583. 10.4161/cib.16491

Hofmann WA, Vargas GM, Ramchandran R, Stojiljkovic L, Goodrich JA, de Lanerolle P (Nov 2006: Nuclear myosin I is necessary for the formation of the first phosphodiester bond during transcription initiation by RNA polymerase II. Journal of Cellular Biochemistry. 99. 4:1001-1009. 10.1002/jcb.21035

105 **Grummt I : Actin and myosin as transcription factors. Curr Opin Genet Dev .. 2006, 2:191-196. 10.1016/j.gde.2006.02.001.**

106 **Moseley JB, Goode BL (Sep 2006: The yeast actin cytoskeleton: from cellular function to biochemical mechanism. Microbiology and Molecular Biology Reviews. 70. 3:605-645. 10.1128/MMBR.00013-06**

types of filaments in cells: microfilaments, one of the three major components of the cytoskeleton, and thin filaments, part of the contractile apparatus in muscle cells.[107] Actin interacts the most with other proteins for continuity, stability and better functioning of the cytoskeleton.[108] Another feature of this protein is its extent; It is almost everywhere in the cytoplasm and nucleus of neurons![109] Another important point is its

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[107] **Ghoshdastider U, Jiang S, Popp D, Robinson RC (Jul 2015: In search of the primordial actin filament. Proceedings of the National Academy of Sciences of the United States of America. 112. 30:9150-9151. 10.1073/pnas.1511568112**

Huber F, Schnauß J, Rönicke S, Rauch P, Müller K, Fütterer C, Käs J (January 2013: Emergent complexity of the cytoskeleton: from single filaments to tissue. Advances in Physics. 62. 1:1-112. 10.1080/00018732.2013.771509

[108] **Dominguez R (Nov 2004: Actin-binding proteins--a unifying hypothesis. Trends in Biochemical Sciences. 29. 11:572-578. 10.1016/j.tibs.2004.09.004**

[109] **Grummt I (Apr: 2006, 16:191-196. 10.1016/j.gde.2006.02.001**

excitability to nerve signals; for example; Actins located in the signal transduction pathways of the cell membrane integrate the stimuli that a cell receives stimulating the restructuring of the actin networks in response.[110] Each actin monomer has two strong binding sites that can connect with other monomers on both sides to form actin polymers.[111] Actin filaments have specific polarity and their ends (Two positive and negative ends) can be distinguished from each other. These two ends

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[110] **Cooper GM.,: The Cell, A Molecular Approach. Geoffrey M Cooper. (ed): Sinauer Associates;, Sunderland; 2000. 101516781[nlmid]**

[111] **McDonald D, Carrero G, Andrin C, de Vries G, Hendzel MJ (Feb 2006: "Nucleoplasmic beta-actin exists in a dynamic equilibrium between low-mobility polymeric species and rapidly diffusing populations". The. Journal of Cell Biology. 172. 4:541-552. 10.1083/jcb.200507101**

Jockusch BM, Schoenenberger CA, Stetefeld J: Aebi U (Aug 2006). "Tracking down the different forms of nuclear actin". Trends in Cell Biology. 16. 8:391-396. 10.1016/j.tcb.2006.06.006

positive and negative can play an important role in intracellular transfers and transmission of nerve signals.

Imagine most neurons and even body cells are made of almost spherical proteins which can attract thought waves through their positive or negative pole, or they even transmit nerve signals! The activity of actins in the area of the neocortex and especially dendritic spines is more impressive.

According to the hypothesis of connection between brains and cosmic memory, The neocortex receives thought waves spread in space with help dendritic spines; Amazing that, Even dendritic spines are made of globular proteins which are definitely very effective in receiving thought waves spread in

space. Suppose we have made a satellite in which even the its constituent components, are almost spherical;[112] These molecules can bond with each other and create positive and negative poles at the two end ends; (Just as actin monomers create positive and negative poles at both ends by polymerization.) That is, this satellite with its amazing molecules and structure, Not only can it powerfully receive thought waves, but it can transmit them simultaneously! Actins cover twenty percent of the body's cell proteins, and this shows how well these spherical proteins have made extension in the body! Why are the proteins that make up the neurons

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[112] **Of course, if spherical molecules can be recognized! Because according to the structure of molecules, it is often not possible to consider a specific shape for them. (2002). Accessed: 2023: http://fermancebo.com/spherical_molecules.html.**

that make up the spherical brain, themselves also spherical?!

As you can see,The structure and features of actin at a very high level confirm our theory. That is, they help the satellite system of the brain to increase its ability to receive thought waves. In addition to actin, there are other substances on the spines and dendritic spines that confirm our theory with their structure and function. To get confirmation, I randomly chose ephrin and ephrin receptors. Due to this random selection, I will show you that even in the most insignificant components of dendritic spines, There are hints that make you are convinced, take seriously the connection between the brain and the outside world.

The pattern of expression of ephrins and Ephs is complex and reflects the

diverse functions these proteins play in the developing and mature brain.[113] Multiple Ephs and ephrins are expressed throughout the neocortex as neurons are maturing .[114] Ephrins and Ephs are

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[113] Paolo Migani , Carole Bartlett ,et al.: Ephrin-B2 immunoreactivity distribution in adult mouse brain,.. Brain Res. 2007, 1182:60-72. 10.1016/j.brainres.2007.08.065

A.M. Flenniken et al.: Distinct and overlapping expression patterns of ligands for Eph-related receptor tyrosine kinases during mouse embryogenesis. Dev. Biol. 1996, 179(2):382-401.. 10.1006/dbio.1996.0269.

P. Migani et al.,: Regional and cellular distribution of ephrin-B1 in adult mouse brain,. . Brain Res. 2009, 9;1247:50-61.. 10.1016/j.brainres.2008.09.100

T. Mori et al.: Differential expressions of the eph family of receptor tyrosine kinase genes (sek, elk, eck) in the developing nervous system of the mouse. Brain Res Mol Brain Res .. 1995, 29(2):325-35.. 10.1016/0169-328x(94)00263-e

[114]ME Yun, RR Johnson, A Antic, MJ Donoghue: EphA family gene expression in the developing mouse neocortex: Regional patterns reveal intrinsic programs and extrinsic influence. J Comp Neurol. 2003, 456(3):203-16. . 10.1002/cne.10498

K Mackarehtschian, CK Lau, I Caras, SK McConnell: Regional differences in the developing cerebral cortex revealed by ephrin-A5 expression. Cereb Cortex. 1999, 9(6):601-10.. 10.1093/cercor/9.6.601

expressed pre- and/or post-synaptically at both the developing and mature excitatory synapse. [115] **That means, Factors involved in the satellite system of the brain are activated when the satellite system of the brain is complete. most ephrins(Except a case)**[116] **such as dendritic spines and actins, are activated when the brain's satellite system is complete and mature. This is another confirmation of the possibility of the brain communicating with the outside world.**[117] **The development of the**

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115 **J. Aoto et al.: Postsynaptic ephrinB3 promotes shaft glutamatergic synapse formation. J. Neurosci. 2007, 27(28):7508-19. . 10.1523/JNEUROSCI.0705-07.2007**

116 **Segura I, Essmann CL, Weinges S, Acker-Palmer A (Mar 2007: Grb4 and GIT1 transduce ephrinB reverse signals modulating spine morphogenesis and synapse formation. Nature Neuroscience. 10. 3:301-310. 10.1038/nn1858**

117 **Chavis P, Westbrook G: Integrins mediate functional pre- and postsynaptic maturation at a hippocampal synapse. Nature. 2001, 411(6835):317-21.. 10.1038/35077101**

cerebral cortex requires considerable cellular and molecular orchestration to lay the foundation for a mature neural network capable of processing sensory input, coordinating motor output, and producing thought, memory, and perception.[118] The trillions of synaptic connections found in the brain enable neuronal activity to flow between neurons. they contain a host of transmembrane molecules and including the ephrin ligand , that interact with one another to enable signals to pass between neurons. These protein intermediates can induce synaptic formation, regulate synapse function and modulate

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[118] **P Rakic, : Neurons in rhesus monkey visual cortex: Systematic relation between time of origin and eventual disposition. Science. 1974, 183(4123):425-7. 10.1126/science.183.4123.425.**

SK McConnell: Constructing the cerebral cortex Neurogenesis and fate determination.. Neuron . 1995, 15(4):761-8. . 10.1016/0896-6273(95)90168-x Free article

synaptic plasticity.[119] The Eph receptor tyrosine kinases (RTKs) and their ligands, the ephrins, mediate many important signals across synapses.[120] Ephrins manage synapse formation, function and plasticity of neocortex neurons; or as mediators, they regulate the plasticity, function and formation of synapses.[121] Newly differentiated neurons in the neocortex move towards the cortical plane to find a more superficial position. Neuronal differentiation is coordinated by an array of molecules and including the protein ephrin, some of which act at multiple points

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[119] E.M. Robbins et al.: SynCAM 1 adhesion dynamically regulates synapse number and impacts plasticity and learning,. . Neuron. 2010, ;68(5):894-906.. 10.1016/j.neuron.2010.11.003

[120] T. Biederer et al.: Signaling by synaptogenic molecules. Curr. Opin. Neurobiol. 2008, 18(3):261-269.. 10.1016/j.conb.2008.07.014

[121] Martin Hruska, Matthew B. Dalva: Ephrin regulation of synapse formation, function and plasticity. Mol Cell Neurosci .. 2012, 50(1):35-44.. 10.1016/j.mcn.2012.03.004.

to modulate the shape and connectivity of neurons .[122] Most of the ephrins regulate and control spine density and synapse function in the cerebral cortex.[123] Ephrin and ephrin receptors, neuroligins and norexins, as well as cadherins and integrins and many other cell adhesion molecules are located on the surface of dendritic spines, which play an important role in the

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formation and plasticity of dendritic spines.[124]

The role of ephrin (especially EphB receptors) and integrins in synaptogenesis, synaptic scaling, plasticity and LTP is very striking and fundamental.[125] These cell

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surface proteins mediate dendritic spine communications with presynaptic terminals, glial cells, or components of the extracellular matrix, and trigger intracellular signaling cascades that influence actin cytoskeletal organization in dendritic spines.[126]

One unique property of the ephrin ligands is that many have the capacity to initiate a "reverse" signal

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126 **Fischer M, Kaech S, Knutti D, Matus A: Rapid actin-based plasticity in dendritic spines. Neuron. 1998, 20(5):847-54. . 10.1016/s0896-6273(00)80467-5.**

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that is separate and distinct from the intracellular signal activated in Eph receptor-expressing cells, the mechanisms by which "reverse" signaling occurs are not completely understood.[127] In justifying the reverse signal, there is a possibility that external stimuli (eg, cosmic memory) has created it. It is possible that the brain based on its needs receives stray waves from the surrounding environment. In the next step,brain converts the received waves into meaningful electrical pulses; and it send them to the lower parts of the brain as a signal from the cortical. As you can see, we still have no justification for reverse signals; They may be a response to

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environmental stimuli. that mean, stimuli outside the body or thought waves that have spread in the space cause the formation of these signals.

But let me instead of the specific proteins found in dendritic spines, talk about all the cells in the body . Let's go to the roots and examine the satellite communication of the brain from the perspective of atoms. Do the atoms that make up neurons confirm the satellite communication of the brain?

To better understand the above topic, It is not bad to have a brief reference to the structure of the atom. Knowing the atom depends on understanding the structure of the nucleus; the word nuclide was coined by Truman P. Kohman in 1947.[128] Kohman defined nuclide as a

[128] **Kohman, Truman P. (1947: Proposed New Word: Nuclide. American Journal of Physics. 15. 4:356-7.**

"species of atom characterized by the constitution of its nucleus" containing a certain number of neutrons and protons. The term thus originally focused on the nucleus. A nuclide (or nucleide, from nucleus, also known as nuclear species) is a class of atoms characterized by their number of protons, Z, their number of neutrons, N, and their nuclear energy state.[129] The packing of protons and neutrons in the nucleus is almost like a bag in which marbles are tightly closed. Neutrons and protons are like marbles, hard spheres of fixed sizes.[130] Nuclei

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depending on the circumstances, can be spherical, rugby ball-shaped (prolate deformation), discus-shaped (oblate deformation), triaxial (a combination of oblate and prolate deformation) or pear-shaped.[131]

When the electron circles around the nucleus, an atom is formed; But the fact is that the electron never revolves around the nucleus; Electrons in general do not "revolve around nuclei", they are in wave functions that may not include any rotation at all.[132] there are waves

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[131] **Battersby, Stephen (2013: "Pear-shaped nucleus boosts search for new physics". Nature. 10.1038/nature.2013.12952**

Gaffney, L. P.; Butler, P A; Scheck, M; Hayes, A B; Wenander, F; et al. (2013: "Studies of pear-shaped nuclei using accelerated radioactive beams" (PDF). Nature. 497. 7448:199-204. 10.1038/nature12073

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propagating back and forth between the electron and the nucleus, keeping the electron from crashing into the nucleus.[133] Of course, Electrons are attracted to the nucleus. Electrons are like waves that exist in locations around the nucleus where they can self-amplify.[134] The electron is a subtle object whose location can never be known for certain, simply because it does not have a specific location. So, the how is best visualised as the

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133 H Haken Hans Christoph Wolf W.D. : The Physics of Atoms and Quanta. Hermann Haken (ed): Springer, New York; 2005. 10.1007%2F3-540-29281-0

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electron being tossed around by a wave the same way a cork is tossed around by waves in the sea.[135] Like all elementary particles, electrons exhibit properties of both particles and waves: they can collide with other particles and can be diffracted like light or produce energy but this energy does not lead to movement.[136] So,the electron possesses both kinetic energy and momentum, yet there is no motion. The cloud is perfectly static. The electron does not "orbit" the proton at all – instead,

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[135] R. M. Buehrer, et al.: Wireless communications: past events and a future perspective. T. S. Rappaport (ed): IEEE, IEEE Communications Magazine ; 2002. 10.1109/MCOM.2002.1006984

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it surrounds it like a fog.[137] The wave properties of electrons are easier to observe with experiments than those of other particles like neutrons and protons because electrons have a lower mass and hence a longer de Broglie wavelength for a given energy.[138] The electron behaves like a wave. It is not revolving at all, electrons acted like waves with a wavelength.[139]

Therefore, it follows from the above content, the core, like the human head, is spherical; Sometimes it

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137 **N. Bohr,: The quantum postulate and the recent development of atomic theory. Nature. 1928, 121, :580-590. 10.1038/121580a0.**

138 **Henry P. Stapp : Mind, Matter and Quantum Mechanics. Stapp, H.P. (ed): Springer, Berlin, Heidelberg.; 2009. 10.1007/978-3-540-89654-8_11**

139 **S. Haroche,: Quantum information in cavity quantum electrodynamics: Logic gates, entanglement engineering and 'Schrödinger-cat states,. S. Haroche, (ed): Philos. Trans. R. Soc., London; 2003. 10.1098/rsta.2003.1204 ,**

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looks like a rugby ball or better said like a 3D oval brain. Or sometimes too it's pear-shaped, like an outline of the brain, provided you imagine which has narrowed from the pons, medulla and cerebellum area (from the base of the brain). It also follows from the above content that, Thought waves are like electrons, they behave like waves; That is, both of them work with wavelength.

The nucleus of the atom can be compared to brain or head, and electron with thought waves in space. Thought waves spread in space like electron have wave motion.

In this comparison, I am not going to claim that the core behaves like an advanced brain! But it can be concluded that the representation of nucleus and electron show a schematic of the general behavior of

the brain. This story becomes serious when the core's interaction with the outside world is defined in its outermost layer. it is the outermost, 'valence' shell that determines the angular momentum properties of the atom. this meant that the "wave function" of the electron had to make a closed loop around the nucleus in an integer number of wavelengths — that is, it forms a standing wave.[140] This is exactly where quantum mechanics is born. The interaction of the brain with the outside world is also formed or defined in its outermost layer. (through the neocortex; or to be more precise, through layer one in the neocortex) To understand how

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140 E. Schrödinger: The current situation in quantum mechanics. Naturwissensch. 1935, 23,:807-812. 10.1007/BF01491891 ,

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move thought waves , towards the brain, It is better to add a bit of quantum mechanics to neuroscience.

The contents above, never want to prove the processes of communication between the brain and the outside world;

Rather, they intend to show that brain satellite communication is not impossible; It is possible that human brain can communicate with other brains. Even the possibility of of existence cosmic memory , and the connection of the brain with it is very high. This article shows that the state of the human head and brain, as well as the components and atoms that make up neurons, are very suitable for satellite communication.

In the book "The magic of make alive", especially in the chapters

“Connecting Brains with Cosmic Memory”

and " H.M.T. Theory " I have described in detail the types of possibilities in how the brain works and its interaction with the outside world. Unfortunately, the detailed editing of this book will take at least one year; But I will try to mention the most important of them.

Probably the most basic points that our theory is based on;:

one, The morphology of the brain, head and their details.

and the other, the importance of genes; Especially the genes that distinguish us from intelligent mammals.

Of course, the following is also very important:

How to receive intelligent energy from the cosmic memory and brain how to takes out junk experiences or spam information from the cortical to the surrounding space; by full mention the details.

the satellite of the brain converts the meaningful electrical pulses that are caused by experiences into intelligent energy so that it can take out them from the human head. It also receives intelligent energy diffused in the space and converts it into meaningful electrical pulses. till to be translated and employed by other parts of the brain. To understand this, it is enough to assume that the genes in neurons behave like computer programming. The programming in genes is written in such a way that they can be encode smart energy. That is, genes are able to encode and give identity to

intelligent energies. or according to another theory; The genes of the neurons of the neocortex are programmed in such a way that merely able to read intelligent energies code and identify them. These special codes exist in smart energy essence; In fact, genes are only able to understand the language of intelligent energy. And unlike the first theory, it does not encode them.

What I will address at the end of this article is the answer to this important question; Why do I insist on examining the brain as an advanced satellite?!

The first reason; In the introduction of the article, I mentioned the numerous benefits of this theory; for example;

We will give convincing answers for many complicated questions that

have remained unanswered until now.

The second reason; We will act much stronger than before in treatment issues and pathology . Because it gives you a detailed understanding of the mental processes and its damages.

Also, many solutions and theories are obtained to justify complex mental processes.

In this section, I explain in the form of a theory that How in brain satellite communication, Information is exchanged between the outside world and inside the brain. If the brain acts like a strong satellite, first of all, dendritic spines become important. As I said, dendritic spines are multi-functional; But the most important of them are:

The first important task;

Imagine millions of dendritic receptors and billions of dendritic spines , at the surface of the grooves or gyruses , they are placed next to each other in a regular and parallel manner and cause to increase the power of receiving brain waves;

Dendritic spines increase the brain receiving power. That is, they cause the brain to receive the thought waves spread in the space more powerfully.

Factors such as components of constructor of neurons such as actin protein, number of grooves on the surface of the brain, type and number of dendritic receptors of neurons and the geometric shape of the brain (3D oval mode), morphology and state of human body and head have a large role to play in

enhancing brain waves receptive power.

The second important task;

dendritic spines act like an analog electrical sensor. electrical sensors are sensitive to physical parameters and react to pressure, heat, light, etc. Sensory receptors of neurons also are sensitive to experience, images, sounds, etc. and react to them. dendritic spines , depending on the experiences received, send signals to the outside world till receive similar analog information from the environment.

According to such a process, you see every experience, or Similar experiences wandering from the environment(It happened in the past) recieve; dendritic spines, act as sensors sending signal to the outside world ,and at the end, Receiving

analog similar information or experiences. you with this method remember past events! In the above interactions, the genes in neurons determine and define the range of functions of dendritic spines.

The third important task; is that dendrites interacting with their neurons, like an inverter behave;

That is, they convert the received analog information (Smart Energy) into meaningful electrical pulses; As The inverter converts AC power to DC power and then DC power to alternating or city electricity converts with usable frequency To fit the device; To understand this; Suppose genes act like computer programming codes. According to this computer programming, meaningful electrical pulses are coded when they are converted into

intelligent energy. When the intelligent energy in the cosmic memory is received by the dendritic spines The encryptions are read again and become meaningful electrical pulses. meaningful electrical pulses depending on different experiences follow different paths in the brain.

The meaningful electrical pulses generated in the body the same are the experiences of the five senses.. They can be compared to spam emails inside the nervous system. It means that most of your experiences are useless and go out of your Brain surface as intelligent energy.

As I said, the above content have been discussed as a theory. I just wanted to show that if we accept the brain's satellite role We come across many ways to justify mental or brain

processes. And we can answer most of the mental dead ends and difficult questions of neuroscience researchers.

Receive information from the world around them and classify them,, is the main job of the cortical lobes. The lobes of the cortical are the gates that act base on the genetics of neurons. The neurons in each lobe receive the information related to themselves from the outside world. Receive specific information for each lobe, is a phenotype that following the genotype of the neurons in that section arises out. Neurons in the cortical lobes have been somehow learned till be able information existent in cosmic memory base on your need Receive, sort and classify; We still do not know which gene or genes are responsible for doing the above! But we are sure that the

neurons of each lobe are learned from the cortex, with the help of genetics, to receive only information about their lobes from the outside environment;

Neurons have different structures especially, in the neocortex and to produce or develop the cognitive abilities of the brain, act very differently! The diversity of neurons reflects the genetic diversity in the neocortex. And this genetic diversity justifies the wide range of functions in this part of the brain.

Intracerebral processing begins with neurons that are flexible and changeable. Changes in neurons are not just in the field of processing; the structure of neocortical neurons change frequently. The flexibility of dendrites can be explained by the flexibility of dendritic spines ; and

because dendrites in neocortical neurons,play a dominant role The flexibility and change of neurons can also be justify; The change in neocortical neurons makes us face the unlimited diversity of the cortical in humans. It is not an exaggeration to say, A scan of the cerebral cortex is a more accurate ID card than fingerprints to introduce people's identity. not only dendritic branches and neurons are flexible But the brain is also flexible. the things you do every day, the decisions you make and thoughts that are shaped by your needs change the shape of the brain grooves; As , a human has five fingers, the number of main grooves in his cerebral cortex is also known.; The difference in the grooves of the brain of humans is like the difference in their fingerprints. The differences although are insignificant and in

detail, but they are delicate and very important! The change or flexibility of the brain is a very important topic that unfortunately following it up, takes us away from the main topic of the article.

Foresight

The spherical shape of the human head has made possible the basis of mental processes; can not be the most complex human mind traits defined with a one- or two-pound brain only;

The astonishing cognitive differences between humans and animals cannot be explained by a 1.23 or 3 percent difference of the genome of brain neurons. Unless the above difference can connect your brain to universal memory like a bridge; The above differences must give your brain special capabilities to be able to communicate with other brains or the global memory!

Cosmic memory, Universal memory, or human memory that has a capacity the size of the universe, includes wander information in the environment. Memory that is not inside the human body; But because of its connection to the neurons in the brain, it has become part of your thinking system; An unique ability, which has made you the most amazing event in the world!

To have an extraordinary mind you need an extraordinary brain. The proof of the brain as a strong receiver or satellite allows us to present the "theory of brains communication with each other"; theory of the communication of brains is the only chance available for getting out of the intellectual impasse Which is formed in the path of neurological knowledge,

The theory of connection between brains with cosmic memory can explain all the details of superior human understanding; Humanial understanding is gained from our brain interaction with world memory . You are the only creature that is connected to a world of information from birth! To be able to connect to a world of information wandering in the environment You must have strong receptors! morphology and Human-specific physics provide the conditions for this connection. Humanaly understanding, or having a strong receptor, requires the spherical position of the head and the standed position of the person (walking on two legs); It is for the same reason that, when you walk or stand, your brain interacts the most with other

people (compared to Sitting, lying down or resting).

brain communication theory, Easily answers the following difficult questions:

How does your brain read the thoughts of others ?! How do negative thoughts come to your brain without a will ?! How other people's thoughts are transmitted to your brain till feel good or bad about them ?! and many other questions.

A world of ambiguity that has formed in the face of cognitive disorders, and unanswered questions, have formed most of the information of contemporary neurologists has become a motivated that I follow the hypothesis of brains connection more seriously; theory of the communication of brains is the only chance available for getting out of

the intellectual impasses Which has formed in the path of neurological knowledge, The theory of HMT, based on the theory of communication of brains, answers the doubts of psychology in detail.

This is the only chance to understand the fundamentals of cognitive disorders and countless mental injuries.. Of course, this Article is only an introduction to study and understand the book "Brain Cognitive Devices and Pathology ";

A book that analyzes the above theories from the perspective of pathology!

Acknowledgements

In my opinion, there is nothing on earth, as intelligent, complex and beautiful as the human brain. I am grateful to whoever created the complex puzzle of the brain.

And from those who spent their whole lives discovering its complexities;

Including:

Santiago Ramón y Cajal, Suzana Herculano-Houzel, Michael

Gazzaniga, Korbinian Brodmann, Adele Diamond, Sigmund Freud, Joseph LeDoux, Ivan Petrovich Pavlov, Brenda Milner, Christine Ann Denny, Eric Richard Kandel and many others. To write this article, I have cited to 210 reliable sources; These sources are given in the form of 140 numbers as subtitles in the footer of the article.

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